DOCUMENT RESUME

ED 478 252 EA 032 625

AUTHOR	Sherman, Joel D.; Honegger, Steven D.; McGivern, Jennifer L.
TITLE	Comparative Indicators of Education in the United States and Other G-8 Countries: 2002.
INSTITUTION	National Center for Education Statistics (ED), Washington, DC.
REPORT NO	NCES-2003-026
PUB DATE	2003-05-00
NOTE	108p.; Project Officer, Mariann Lemke.
AVAILABLE FROM	ED Pubs, Education Publications Center, U.S. Department of Education, P.O. Box 1398, Jessup, MD 20794-1398 (Publication ID: ERN3552P). Tel: 877-433-7827 (Toll Free); TDD/TTY: 800-437-0833 (Toll Free); Fax: 301-470-1244; e-mail: edpubs@inet.ed.gov; Web site: http://www.ed.gov/pubs/edpubs.html. For full text: http://nces.ed.gov/pubs2003/2003026.pdf.
PUB TYPE	Books (010) -- Numerical/Quantitative Data (110) -- Reports - Research (143)
EDRS PRICE	EDRS Price MF01/PC05 Plus Postage.
DESCRIPTORS	Academic Achievement; *Comparative Analysis; Education Work Relationship; Educational Attainment; Educational Finance; *Educational Indicators; *Educational Research; Educational Strategies; Elementary Secondary Education; Enrollment; Financial Support; *Foreign Countries; Higher Education; Preschool Education; Primary Education; *Public Education; Public Schools; Statistical Studies; Student Behavior; Teacher Salaries; Teacher Student Ratio
IDENTIFIERS	Canada; France; Germany; Italy; Japan; Russia; United Kingdom; United States

ABSTRACT

This report presents a set of education indicators that describes how the United States education system compares with those of the other G-8 countries: Canada, France, Germany, Italy, Japan, the Russian Federation, and the United Kingdom. The data were collected from three main sources: the Organisation for Economic Cooperation and Development's National Education Systems project; assessments conducted by the International Association for the Evaluation of Educational Achievement; and the Program for International Student Assessment. The indicators are organized into five major sections: (1) "Demographic and Socioeconomic Context of Education"; (2) "Preprimary and Primary Education"; (3) "Secondary Education"; (4) "Higher Education"; and (5) "Education and the Labor Force." In total, the report presents 31 indicators, among which are the following: educational attainment of the population; access to primary education; human resources in primary education; public school teachers' salaries; achievement of secondary-school students; expenditures for primary and secondary education; access to higher education; science and mathematics degrees; and labor market outcome of education. The report includes numerous graphs, charts, and tables; key findings for each indicator; a section that highlights key findings; a glossary; and a description and classification of G-8 countries' education systems. (WFA)

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Comparative Indicators of Education in the United States and Other G8 Countries: 2002

May 2003

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The NCES World Wide Web Electronic Catalog is: *http://nces.ed.gov/pubsearch*

Suggested Citation

U.S. Department of Education, National Center for Education Statistics. *Comparative Indicators of Education in the United States and Other G8 Countries: 2002*, NCES 2003–026, by Joel D. Sherman, Steven D. Honegger, and Jennifer L. McGivern. Project Officer: Mariann Lemke. Washington, DC: 2003.

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ACKNOWLEDGMENTS

The authors wish to thank all those who contributed to the production of this report, including Marianne Perie for her work in identifying an initial set of possible indicators, Bernhard Streitwieser for his work in analyzing and writing initial draft text for the indicators, and Alexandra Gerson and Heather Hill for compiling indicator data and creating initial graphics for the indicators. From the International Studies Center at Boston College, we wish to thank Eugenio Gonzalez for providing additional information on the Third International Mathematics and Science Study.

Eugene Owen at the National Center for Education Statistics (NCES) initiated this report based on a similar publication produced by the French Ministry of Education. Several other NCES staff members provided valuable advice throughout the project, particularly Tom Snyder, Patrick Gonzales, Val Plisko, and Mariann Lemke. Chris Calsyn from the Education Statistics Services Institute (ESSI) also provided input. Technical advice was provided by Shelley Burns (NCES), David Miller, Michael Regnier, and Jason Sellers (ESSI) and reviewers for the publication: Christopher Cross (Center on Education Policy), Peg Goertz (University of Pennsylvania), Jeffrey Owings (NCES), Andreas Schleicher (Organization for Economic Cooperation and Development), and Linda Zimbler (NCES). Karen O'Conor served as the adjudicator for this publication.

TABLE OF CONTENTS

Page

ACKNOWLEDGMENTS iii

INTRODUCTION 1

HIGHLIGHTS 9

INDICATORS PART I: Context of Education 15

Indicator 1: Youth Population 16

Indicator 2: Educational Attainment 18

Indicator 3: Enrollment in Formal Education 20

Indicator 4: Enrollment in Private Schools and Higher Education Institutions 22

INDICATORS PART II: Preprimary and Primary Education 25

Indicator 5: Early Childhood Enrollment 26

Indicator 6: Student/Teacher Ratios in Primary Education 28

Indicator 7: Public School Teachers' Salaries in Primary Education 30

Indicator 8: Instructional Strategies in Primary Education 32

Indicator 9: Primary Students' Attitudes Towards Mathematics and Science 34

Indicator 10: Mathematics and Science Achievement in Primary Education 36

INDICATORS PART III: Secondary Education 39

Indicator 11: Enrollment in Upper Secondary Education 40

Indicator 12: Student/Teacher Ratios in Secondary Education 42

Indicator 13: Public School Teachers' Salaries in Upper Secondary Education 44

Indicator 14: Frequency of Behavior Problems 46

Indicator 15: Secondary Students' Attitudes Towards Mathematics and Science 48

Indicator 16: Mathematics and Science Achievement in Secondary Education 50

Indicator 17: Reading Performance of Secondary School-Age Youth 52
Indicator 18: Civic Participation 54
Indicator 19: Civic Achievement 56
Indicator 20: Upper Secondary School Graduation Rates 58
Indicator 21: Expenditures per Student for Primary and Secondary Education 60
Indicator 22: Expenditures for Primary and Secondary Education as a Percent of GDP 62
Indicator 23: Sources of Public Funding for Primary and Secondary Education 64
INDICATORS PART IV: Higher Education 67
Indicator 24: Higher Education Enrollment 68
Indicator 25: First University Degrees 70
Indicator 26: First University Degrees in Science 72
Indicator 27: Expenditures per Student for Higher Education 74
Indicator 28: Expenditures for Higher Education as a Percent of GDP 76
Indicator 29: Sources of Public Funding for Higher Education 78
INDICATORS PART V: Education and the Labor Force 81
Indicator 30: Labor Force Participation Rates 82
Indicator 31: Education and Earnings 84
GLOSSARY 87
CLASSIFICATION OF COUNTRIES' EDUCATION SYSTEMS 93
SUPPLEMENTAL NOTES 105

TABLES

Table A. Overview of education systems in the G8 countries 6
Table 10a. Mean mathematics achievement scores of fourth-grade students, by country: 1994-95 37
Table 10b. Mean science achievement scores of fourth-grade students, by country: 1994-95 37
Table 16a. Average scale scores of eighth-grade students in mathematics achievement, by country: 1999 51

Table 16b. Average scale scores of eighth-grade students in science achievement, by country: 1999 51

Table 16c. Percentage of eighth-grade students reaching the top 10 percent benchmarks of the TIMSS-R International Benchmarks of mathematics and science achievement, by country: 1999 51

Table 17. Mean reading literacy performance scores of 15-year-olds, by country: 2000 53

Table 19a. Average achievement scores of 14-year-olds in total civic knowledge, by country: 1999 57

Table 19b. Average achievement scores of 14-year-olds in civic skills, by country: 1999 57

Table 19c. Average achievement scores of 14-year-olds in civic content, by country: 1999 57

Table B. Classification of education programs in the G8 countries into the International Standard Classification of Education (ISCED) 95

FIGURES

Figure 1a. Percentage of the total population ages 5 to 19, by country: 1992 and 1999 17

Figure 1b. Percentage change in the population ages 5 to 19, by country: 1992 to 1999 17

Figure 2a. Percentage of the population ages 25 to 64 that has completed at least an upper secondary education, by age group and country: 1999 19

Figure 2b. Percentage of the population ages 25 to 64 that has completed at least a first university degree, by age group and country: 1999 19

Figure 3a. Percentage of the population ages 5 to 29 enrolled in formal education, by age group and country: 1999 21

Figure 3b. Percentage of the population ages 18 and 19 enrolled in secondary and higher education, by age group and country: 1999 21

Figure 4a. Percentage of primary and secondary enrollment in private schools, by country: 1999 23

Figure 4b. Percentage of higher education enrollment in private institutions, by program type and country: 1999 23

Figure 5a. Percentage of children ages 3 to 5 enrolled in preprimary education, by country: 1999 27

Figure 5b. Percentage of children ages 3 to 5 enrolled in preprimary and primary education, by selected age and country: 1999 27

Figure 6. Ratio of full-time-equivalent students to full-time-equivalent teachers in public and private primary schools, by country: 1999 29

Figure 7. Public primary teachers' average salaries in U.S. dollars, by level of experience and country: 1999 31

Figure 8a. Percentage of fourth-grade students whose mathematics teachers reported using selected organizational approaches in most or every lesson, by country: 1994-95 33

Figure 8b. Percentage of fourth-grade students whose science teachers reported using selected organizational approaches in most or every lesson, by country: 1994-95 33

Figure 9a. Percentage of fourth-grade students with positive or strongly positive attitudes towards mathematics, by country: 1994-95 35

Figure 9b. Percentage of fourth-grade students with positive or strongly positive attitudes towards science, by country: 1994-95 35

Figure 11. Percentage of the population ages 16 to 19 enrolled in public and private upper secondary education and higher education, by selected age and country: 1999 41

Figure 12. Ratio of full-time-equivalent students to full-time-equivalent teachers in public and private secondary schools, by country: 1999 43

Figure 13. Public upper secondary general teachers' average salaries in U.S. dollars, by level of experience and country: 1999 45

Figure 14a. Percentage of eighth-grade students whose principals reported that behavior threatening a safe and orderly environment occurs at least weekly, by selected behavior and country: 1999 47

Figure 14b. Percentage of eighth-grade students whose principals reported that behavior threatening a safe and orderly environment is a serious problem, by selected behavior and country: 1999 47

Figure 15a. Percentage of eighth-grade students with "high" scores on the index of positive attitudes towards mathematics, by country: 1999 49

Figure 15b. Percentage of eighth-grade students with "high" scores on the index of positive attitudes towards science, by country: 1999 49

Figure 17. Percentage of students performing at given proficiency levels on the combined reading literacy scale, by country: 2000 53

Figure 18. Percentage of 14-year-olds who expect to participate in various civic activities, by country: 1999 55

Figure 20. Upper secondary school graduation rates, by sex and country: 1999 59

Figure 21a. Total expenditures per student in public and private primary schools, in current U.S. dollars converted using Purchasing Power Parities (PPPs), by country: 1994 and 1998 61

Figure 21b. Total expenditures per student in public and private secondary schools, in current U.S. dollars converted using Purchasing Power Parities (PPPs), by country: 1994 and 1998 61

Figure 22a. Public expenditures for primary and secondary education as a percent of Gross Domestic Product (GDP), by country: 1994 and 1998 63

Figure 22b Public and private expenditures for primary and secondary education as a percent of Gross Domestic Product (GDP), by country: 1994 and 1998 63

Figure 23 Percentage of initial public funds for primary and secondary education, by government level and country: 1997 65

Figure 24a Percentage of the population ages 18 to 29 enrolled full-time and part-time in higher education, by country: 1994 and 1999 69

Figure 24b Percentage of the population ages 18 to 29 enrolled full-time and part-time in higher education, by selected age group and country: 1999 69

Figure 25a Graduation rates in higher education, by length of program and country: 1999 71

Figure 25b Graduation rates in higher education, by type of program and country: 1999 71

Figure 26a Percentage of first university degrees awarded in science, by country: 1999 73

Figure 26b Percentage distribution of first university science degrees awarded, by science content area and country: 1999 73

Figure 27 Expenditures per student in public and private institutions of higher education, in current U.S. dollars converted using Purchasing Power Parities (PPPs), by country: 1995 and 1998 75

Figure 28a Public expenditures for higher education as a percent of Gross Domestic Product (GDP), by country: 1994 and 1998 77

Figure 28b Public and private expenditures for higher education as a percent of Gross Domestic Product (GDP), by country: 1994 and 1998 77

Figure 29 Percentage of initial public funds for higher education, by level of government and country: 1997 79

Figure 30a Labor force participation rates of the adult population ages 25 to 64, by level of education and country: 1999 83

Figure 30b Labor force participation rates of the male and female adult population ages 25 to 64, by level of education and country: 1999 83

Figure 31a Relative earnings of the adult population ages 25 to 64 who have completed less than upper secondary education compared to adults who have completed upper secondary education, by country: 1997, 1998, or 1999 85

Figure 31b Relative earnings of the adult population ages 25 to 64 who have completed higher education compared to adults who have completed upper secondary education, by country: 1997, 1998, or 1999 85

Introduction

INTRODUCTION

With the emergence and growth of the global economy, policymakers and educators have turned to international comparisons to assess how well national systems of education are performing. These comparisons shed light on a host of policy issues, from access to education and equity of resources to the quality of school outputs. They provide policymakers with the opportunity to compare different aspects of countries' education systems, to assess systems' performances, and to identify potential strategies to improve student achievement and system outputs.

For more than a decade, the United States has participated actively in international projects that are designed to provide key information about the performance of the American education system compared to other countries. These projects include the Indicators of National Education Systems (INES) at the Organization for Economic Cooperation and Development (OECD), the international assessments conducted by the International Association for the Evaluation of Educational Achievement (IEA), and more recently, the OECD's Program for International Student Assessment (PISA). This report, *Comparative Indicators of Education in the United States and Other G8 Countries: 2002*, draws on the most current information produced by these projects available at the time of production of this report (summer 2002) to present a set of education indicators that describes how the U.S. education system compares with those in other economically developed countries. Updated information from these various projects will be incorporated in subsequent reports.

Although the three international education projects cited above involve many countries worldwide, the primary comparisons in this report are with the Group of Eight or G8 countries. These are the eight most industrialized countries in the world, whose representatives meet regularly to discuss economic and other policy issues: Canada, France, Germany, Italy, Japan, the Russian Federation, the United Kingdom, and the United States. These countries were selected for comparison because they are relatively similar to the United States in their economic development and because they are among our major economic competitors. When data are not available for the entire United Kingdom, the indicators may include comparisons with component jurisdictions of the United Kingdom such as England or Scotland. Some indicators also include comparisons with a smaller grouping of G8 countries based on availability of data.

EDUCATION LEVELS USED FOR THE INDICATORS

The indicators presented in the report are organized around four education levels—preprimary education, primary education, secondary education, and higher education. To ensure comparability in the indicators across countries, each country restructured its national education data to correspond with the definitions of education levels that were developed in the 1997 revision of the International Standard Classification of Education (ISCED) (UNESCO 1997). Complete definitions of all education levels in the ISCED are provided in the glossary at the end of this report; a brief overview is presented here to provide the reader with a frame of reference to understand what levels of education are included in each of the indicators. The following two paragraphs highlight the key features of education programs from (1) preprimary through secondary education and (2) higher education programs.

Preprimary education includes programs of education for children at least 3 years of age that involve organized, center-based instructional activities; in most countries, preprimary education is not compulsory. Primary education includes programs that are designed to give students a sound basic education in reading, writing, and mathematics, along with an elementary understanding of other subjects such as history, geography, science, art, and music. In the international classification, primary education usually begins at the start of compulsory education (around age 6) and lasts for 6 years. Secondary education encompasses two stages: lower secondary education and upper secondary education. Lower secondary education includes programs that are designed to complete basic education; the standard duration in the international classification is 3 years. Upper secondary education is designed to provide students with more in-depth knowledge of academic or vocational subjects and to prepare them for higher level academic or vocational studies or entry into the la-

bor market. The standard duration of upper secondary education in the international classification is 3 years.

Higher education includes two education levels.[1] The first level contains two types of programs: vocational programs and academic programs. The vocational programs provide a higher level of technical and vocational education that is designed to prepare students for the labor market. In the international classification, these programs are between 2 and 4 years in duration. Academic programs at the first level of higher education are intended to provide sufficient qualifications for gaining entry into advanced research programs and professions with high skill requirements. The international classification includes programs of medium length that are less than 5 years in duration and long programs that are 5 to 7 years in duration. The second level of higher education includes doctoral studies and usually requires the completion of a research thesis or dissertation.[2]

MAPPING G8 COUNTRIES' EDUCATION SYSTEMS TO THE ISCED

Differences in the structure of countries' education systems often make international comparisons difficult. People in the United States, for example, might think that secondary education in other countries is equivalent to high school in the United States or that a first university degree is equivalent to an American bachelor's degree. This may be the case in some countries, but not in others. To improve the comparability of education indicators, OECD worked with countries to standardize their education systems into the ISCED, as described above. Table A provides brief descriptions of how each G8 country's education system was mapped to the ISCED. These descriptions should help the reader obtain a better understanding of the indicators that follow. A more detailed mapping of G8 countries' education systems is provided at the end of this report, after the glossary.[3]

ORGANIZATION OF THE REPORT

Comparative Indicators of Education in the United States and Other G8 Countries: 2002 begins with a section that highlights key findings and then presents 31 indicators that compare different aspects of education systems in the United States and the seven other G8 countries. The 31 indicators are organized into the following sections:

Demographic and Socioeconomic Context of Education
Preprimary and Primary Education
Secondary Education
Higher Education
Education and the Labor Force

The section on the context of education presents indicators that suggest the potential demand for education in countries as measured by the size of the youth population and countries' current levels of educational attainment. It also contains one indicator on enrollment in education over the life cycle and one on the distribution of enrollments in public and private schools in primary, secondary, and higher education.

The sections on preprimary and primary education, secondary education, and higher education begin with indicators that pertain to access to education, generally measured by enrollment rates at each education level. The next set of indicators examines school resources such as pupil-teacher ratios, teachers' instructional strategies, and students' attitudes toward subjects such as mathematics and science. The third group of indicators compares student outcomes, such as test scores on international assessments, and system outcomes such as graduation ratios. The sections conclude with a comparison of countries' financial investments in education.

Finally, the section on education and the labor force examines the relationship between educational attainment and labor force participation and earnings.

[1] In the international classification, more advanced education is generally referred to as tertiary education. In this report, the term "higher education" is used because this term is more familiar to American readers.

[2] It should be noted that the international classification includes an education level that straddles the boundary between secondary and higher education: postsecondary nontertiary education. This program of study—which is primarily vocational in nature—is generally taken after the completion of secondary school, but the subject content is not more advanced than the content of secondary school courses. This level of education is included in indicators of primary and secondary education in all other countries except the United States. In the United States, postsecondary, nontertiary education is not included in the enrollment indicators; expenditures for this education level are partially included in indicators of expenditures of higher education.

[3] For more complete mappings of the G8 countries' education systems to the ISCED, see *Classifying Educational Programs: Manual for ISCED-97 Implementation in OECD Countries* (OECD 1999).

Each indicator is presented in a two-page format. The first page presents key findings that highlight how the United States compares with the other G8 countries on the indicator. The key findings are followed by a short section that defines the indicator and describes key features of the methodology used to produce the indicator. The second page presents graphics that support the key findings, sources of data for the indicator, and more detailed notes on interpreting the results.

Most of the indicators included in the report present a snapshot of the U.S. education system at a point in time during the late 1990s, although earlier data are used for some indicators where these are the most current data available on the topic. However, a number of indicators, particularly in the area of education finance, examine changes over time—generally between the mid- and late-1990s. While longer term trends would also be of interest to policymakers, the lack of comparable data in earlier years makes it difficult to extend the trend analysis further back in time.

Finally, it should be noted that most indicators related to enrollment in education use 1999 as the reference year. In the United States, this designation applies to the 1998–99 school year; indicators are based on enrollment data collected in October 1998. Finance indicators use 1998 as the reference year. In the United States, this designation applies to the 1997–98 school year; indicators are based on expenditures for the period from mid-1997 to mid-1998.

DATA SOURCES

There are three main sources of data for this report. The first is the OECD's Indicators of National Education Systems (INES) project. Most of the OECD data are from tables in *Education at a Glance* (2001) or the OECD 2001 database. Additional data are from the 1996 and 2000 editions of *Education at a Glance*.

The second data source is the assessments conducted by the International Association for the Evaluation of Educational Achievement (IEA). These include the 1995 Third International Mathematics and Science Study (TIMSS), the 1999 Third International Mathematics and Science Study—Repeat (TIMSS-R), and the 1999 Civic Education Study (CivEd).

The third data source is the Program for International Student Assessment (PISA), conducted by the OECD in 2000.

Data for the indicator on youth population are from the International Database of the U.S. Census Bureau.

It should be noted that indicator data from different editions of *Education at a Glance* and the OECD database are derived from annual data collections carried out by the OECD. Data from member countries come from a variety of national data sources. These include administrative data collections, school surveys, household surveys, and national financial reports. Most of the indicator data for the United States come from the NCES Common Core of Data (CCD), the NCES Integrated Postsecondary Education Data System (IPEDS), the Current Population Survey (CPS) of the U.S. Census Bureau, and the NCES Schools and Staffing Survey (SASS). It should further be noted that at the time of production of this report, during spring and summer 2002, these sources provided the latest available data on each of the topics included in this report. Information from a new edition of *Education at a Glance* (2002) or other more recent information was unable to be included because of production deadlines.

STATISTICAL TESTING

The majority of indicators presented in this report are derived either from administrative records that are based on collections from the universe of respondents or from national sample surveys, for which standard errors of national estimates were not available. Consequently, for these indicators, no tests of statistical significance were conducted to establish whether the observed differences from the U.S. average were statistically significant. However, for the nine indicators derived from the international assessments (Indicators 8 to 10 and 14 to 19), standard *t* tests were used to determine whether the U.S. estimates were statistically different from other G8 countries' estimates. Differences were reported if they were found to be statistically significant at the .05 level, using two-tailed tests of significance.

OTHER INTERNATIONAL INDICATOR PUBLICATIONS

The National Center for Education Statistics participates in numerous international education activities through the International Activities Program. More information about the program and other reports published by NCES can be found at *http://nces.ed.gov/surveys/international*.

Table A. Overview of education systems in the G8 Countries

G8 country	Overview of system
Canada	**Preprimary education** is offered in kindergartens, nursery schools, and preschools, for children ages 4 and 5. Compulsory education begins with **primary education** for children who are 6 years of age and lasts for 5 to 6 years in different provinces. **Secondary education** is divided into two stages. Lower secondary education lasts 3 to 4 years; upper secondary education lasts 4 to 5 years, includes both general and vocational programs, and leads to a secondary school or high school diploma after 12 years of study in most provinces. **Postsecondary, nontertiary education** includes university transfer programs in Quebec and short vocational programs (6 months to 2 years). **Vocational/technical higher education** programs of 1.5 to 3 years duration are offered at community colleges and lead to community college diplomas. **Academic higher education** includes intermediate programs of 1 to 2 years that permit transfer to 4 year colleges and universities; bachelor's programs of 4 years' duration that result in a first university degree; master's, postgraduate, and first-professional degree programs that award a second university degree; and doctoral programs that culminate in the award of a Ph.D.
France	**Preprimary education** is offered in preschools for children ages 2 through 5. Compulsory school begins with **primary education** for children who are 6 years of age and lasts for 5 years. **Secondary education** is divided into two cycles: lower and upper secondary education. Lower secondary education (*Collège*) lasts 4 years and leads to the award of a *Brevet*. Upper secondary education includes separate vocational and general programs of study. Vocational/technical education programs have a theoretical duration of 1 to 3 years and lead to several different professional certifications. These programs permit entry into higher level vocational and technical education and provide a qualification for entry into the labor market. General programs that permit entry into university studies are of 3 years' duration and lead to a general or technological *baccalauréat*. **Postsecondary, nontertiary education** includes pre-university education and vocational education programs of 2 to 4 years in health and social schools that lead to a *diplôme*. **Vocational/technical higher education** programs are of 1.5 to 3 years' duration and lead to a variety of certifications. **Academic higher education** includes intermediate programs of 2 years' duration that lead to a *diplôme d'études universitaires générales (DEUG)*, first university programs of 3 to 7 years' duration that lead to a license and other specialized diplomas, second university degrees that lead to a maitrise and specialized diplomas, and third university degrees that culminate in the award of a *diplôme d'études supérieures spécialisées (DESS)* or a *diplôme de docteur*.
Germany	**Preprimary education** in Germany is offered in kindergartens and preschool classes, for children ages 3 to 6. Compulsory education begins at age 6 in **primary education** and lasts 4 years. **Secondary education** is divided into two levels: lower and upper secondary education. Lower secondary education lasts 6 years and leads to either a *Hauptschulabschluss* or a *Realschulabschluss*. Upper secondary education includes separate vocational and general programs of study. Vocational and technical education programs are offered in specialized vocational schools, typically last from 1 to 3 years, and lead to several different diplomas or certificates. These programs permit entry into higher level vocational and technical education and provide a qualification for entry into the labor market. General programs that permit entry into university studies are offered at *Gymnasien* and specialized vocational schools and lead to the award of an *Abitur* and other specialized certificates. **Postsecondary, nontertiary education** includes second-cycle vocational programs that lead to several specialized certifications. **Vocational/technical higher education** programs are offered in specialized academies, trade and technical schools, and colleges of public administration, are 2 to 4 years in length, and lead to a range of certificates and diplomas. **Academic higher education** or university studies last 4 to 5 years and lead to the award of a *Diploma*. Doctoral education lasts 2 years and leads to the award of a *Promotion*.
Italy	**Preprimary education** in Italy begins at age 3 and lasts for 3 years. Compulsory education starts in **primary education** at age 6, lasts for 5 years, and leads to the award of a *licenza elementare*. **Secondary education** is divided into two levels: lower and upper secondary education. Lower secondary education lasts for 3 years and leads to the award of a *licenza media*. Upper secondary education includes separate vocational and general programs of study. Vocational education is offered in regional vocational and technical institutes and in art high schools. Programs last for 2 to 4 years and lead to the award of professional certificates and a *maturità artistico*. General programs that permit entry into university studies last for 5 years and lead to a *diploma di maturità classica, scientifica, linguistica*, and *tecnica*. Postsecondary, nontertiary education is offered in regional education schools, has a duration of 0.5 years, and leads to a second-level vocational qualification. **Vocational/technical higher education** programs are offered in sports, fine arts, and dramatics, last for 3 to 4 years, and lead to the award of diplomas in these areas. **Academic higher education** includes first university programs of 3 to 6 years, which lead to a *diploma di laurea*; second university programs of 2 to 5 years' duration, which lead to a *diploma di specializzazione*; and doctoral programs of 3 to 5 years, which lead to the award of the *titulo di dottore di recerca*.

Table A. Overview of education systems in the G8 countries—Continued

G8 country	Overview of system
Japan	**Preprimary education** is offered in Japan in day nurseries and kindergartens for children ages 3 to 5 and has a duration of 1 to 3 years. Compulsory education begins with **primary education** for children who are 6 years of age and lasts for 6 years. **Secondary education** is divided into two stages: lower and upper secondary education. Lower secondary school lasts 3 years. Upper secondary education includes separate programs of vocational and general education. Vocational education lasts 3 years and leads to a certificate of graduation that provides a qualification for the labor market. General education that leads to university studies also lasts 3 years and leads to a certificate of graduation. **Vocational/technical higher education** programs offered at junior colleges and specialized training colleges last 2 to 3 years and lead to the award of an associate's or a technical associate's diploma. **Academic higher education** includes first university degree programs that last for 4 to 6 years and lead to the award of a bachelor's degree; second university programs of 2 years' duration that lead to the award of a master's degree; and graduate and professional programs that culminate with the award of a doctor's degree.
Russian Federation	**Preprimary education** in the Russian Federation begins for children age 3 and lasts 3 years. Compulsory school begins with **primary education** for children who are 6 to 7 years of age and lasts for 4 years. **Secondary education** is divided into two cycles: basic and upper secondary education. Basic education lasts for 5 years and leads to the award of a certificate 1. Upper secondary education includes separate vocational and general programs of study. Vocational/technical education programs last 2 to 3 years and lead to a certificate 2 or a diploma 1. These programs provide a qualification that leads to direct entry into the labor market. General programs that permit entry into university studies last 2 years and lead to the award of an *attestat*. **Postsecondary nontertiary education** programs are of 1 to 2 years' duration and lead to a certificate 2. **Vocational/technical higher education** programs last for 3 years and lead to a specialist's diploma 1. **Academic higher education** includes intermediate programs of 2 years' duration that lead to an *attestat* or a specialist's diploma 1; first university programs of 4 to 7 years' duration that lead to a bachelor's degree or a specialist's diploma 2; second university programs of 1 to 2 years' duration that lead to a master's degree or an *internatura*; and doctoral programs of 2 to 3 years' duration that lead to a *kandidat nauk* or a *doctor nauk*.
United Kingdom	**Primary education** in the United Kingdom is offered in nursery schools and classes, play groups and day nurseries, and reception classes, for children ages 2 to 4. Compulsory education begins at age 5 in **primary education** and lasts 5 years. **Secondary education** is divided into two levels: lower and upper secondary education. Lower secondary education lasts 3 years. Upper secondary education includes separate vocational and general programs of study. Vocational and technical education programs are offered in a variety of programs, typically last for 1 to 2 years, and lead to the award of a general national vocational qualification (GNVQ) and other certificates. These programs permit entry into higher level vocational and technical education and provide a qualification for entry into the labor market. General programs that permit entry into university studies last 1 to 2 years and lead to the General Certificate of Education (GCE) A level or equivalent and other certifications. **Postsecondary, nontertiary education** is offered in health education access courses, which are of varied length and do not lead to a diploma or certification. **Vocational/technical higher education** programs are offered in a variety of programs, last for 1 to 3 years, and lead to various level 4 and 5 qualifications. **Academic higher education** (university studies) includes first university programs that last 2 to 5 years and lead to a bachelor's degree; second university programs that last 1 to 2 years and lead to a master's degree and postgraduate diplomas and certificates; and doctoral programs that last 3 years and lead to the award of a Ph.D.
United States	**Preprimary education** is offered in prekindergarten and kindergarten classes in public and private elementary schools and in early childhood development programs in private nursery schools and early childhood education centers for children ages 3 to 5. **Primary education** is offered in elementary schools, begins at age 6, and lasts for 6 years. **Secondary education** is divided into two levels. Lower secondary education lasts 3 years and is offered in grades 7 to 9 in middle schools or junior high schools and grade 9 in high schools. Upper secondary education lasts 3 years and includes grades 10 to 12 in high schools. **Postsecondary, nontertiary education** is offered in community colleges and private for-profit trade schools and includes vocational certification programs of 6 months to 1 year. **Vocational/technical higher education** is offered at community colleges, is typically about 2 years in length, and results in an associate's degree. **Academic higher education** includes first university programs that last 4 years and lead to the award of a bachelor's degree; second university programs that lead to a master's degree, a professional certificate, or a professional degree in fields such as medicine and law; and doctoral programs that lead to a Ph.D.

Highlights

HIGHLIGHTS

INTRODUCTION

This report is designed to describe how the U.S. education system compares with the education systems in the Group of Eight or G8 countries. These countries, which include Canada, France, Germany, Italy, Japan, the Russian Federation, the United Kingdom, and the United States, are among the world's most economically developed economies. *Comparative Indicators of Education in the United States and Other G8 Countries: 2002* draws on the most current information about education from the Indicators of National Education Systems (INES) project at the Organization for Economic Cooperation and Development (OECD), the international assessments conducted by the International Association for the Evaluation of Educational Achievement (IEA), and more recently, the OECD's Program for International Student Assessment (PISA). The main findings of this report are highlighted below. The highlights are organized around the five major sections of the report.

CONTEXT OF EDUCATION

Potential Demand for Education

Relative Size of the School-Age Population. Primary and secondary school-age children (between the ages of 5 and 19) represented a larger proportion of the total population in the United States than in all seven other countries presented except the Russian Federation. The United States was one of only three G8 countries whose school-age population grew in absolute number between 1992 and 1999—the other two being the United Kingdom and Germany. (Indicator 1)

Educational Attainment of the Population

Completion of Upper Secondary Education. In 1999, the proportion of adults who completed at least an upper secondary education was higher in the United States than in the six other countries presented. Among younger adults (ages 25 to 34), the upper secondary completion rate was still higher in the United States than in five of the six other countries presented, despite broadened access to upper secondary education in these countries. Only Japan had a higher upper secondary school completion rate for people in this age group than the United States. (Indicator 2)

Completion of Higher Education. Similarly, in 1999, the United States had a higher proportion of all adults (ages 25 to 64), as well as younger adults (ages 25 to 34), who had completed a first university degree than the six other countries presented. However, the difference in the proportion of younger adults (ages 25 to 34) and older adults (ages 55 to 64) who had completed a first university degree was smaller in the United States than in Japan and Canada, suggesting that these two countries have expanded access to higher academic education to a larger segment of their populations in recent years. (Indicator 2)

PREPRIMARY AND PRIMARY EDUCATION

Access to Preprimary Education

Participation in Preprimary Education. In 1999, enrollment rates of children ages 3 to 5 in preprimary education were lower in the United States than in France, Germany, Italy, and Japan. France and Italy had nearly universal enrollment of 3- to 5-year-olds in preprimary education. The United States had lower enrollment rates of 3- and 4-year-olds in preprimary education than all other countries presented except Canada and lower enrollment rates of 5-year-olds in preprimary and primary education than all other countries presented except Canada and Germany. (Indicator 5)

Human Resources in Primary Education

Student/Teacher Ratios in Primary Education. The United States had the second-lowest student/teacher ratio in primary education of the countries presented in 1999. Only Italy had a lower student/teacher ratio. (Indicator 6)

Teachers' Salaries in Public Primary Education. In 1999, primary school teachers in the United States with minimum qualifications had higher average starting salaries than teachers in France, Italy, England, and Scotland, but lower average starting salaries than teachers in Germany. U.S. primary teachers with minimum qualifications at the top of the salary schedule had higher average salaries than their counterparts in all of these countries. (Indicator 7)

Achievement of Primary School Students

Achievement in Mathematics and Science. According to the Third International Mathematics and Science Study conducted in 1994–95, American fourth-graders had higher average scores in both mathematics and science than their counterparts in Canada, England, and Scotland, but lower average scores in mathematics than Japanese students. No differences were detected in Japanese fourth-grade students' average scores in science relative to American students' average scores. (Indicator 10)

SECONDARY EDUCATION

Human Resources in Secondary Education

Student/Teacher Ratios in Secondary Education. In contrast with primary education, in 1999, the United States had the second-highest student/teacher ratio in secondary education of the eight countries presented—second only to Canada. (Indicators 6 and 12)

Teachers' Salaries in Public Upper Secondary Education. Similar to teachers' salaries in primary education, in 1999, public upper secondary teachers in the United States with minimum qualifications had higher average starting salaries than teachers in France, Italy, England, and Scotland, but lower starting salaries than teachers in Germany. U.S. public upper secondary teachers with minimum qualifications at the top of the salary schedule had higher average salaries than teachers in all other countries reporting data except Germany. (Indicators 7 and 13)

Achievement of Secondary School Students

Achievement in Mathematics and Science. According to the Third International Mathematics and Science Repeat (TIMSS-R) Study conducted in 1999, American eighth-grade students had lower average scores in both mathematics and science than Japanese and Canadian students, but higher average scores than Italian students. Students from the Russian Federation also scored higher on average in mathematics, but no differences were detected in the scores of Russian and U.S. students in science. No differences were detected in the mathematics scores of English and U.S. students, but U.S. students had lower average mathematics scores than their English counterparts. (Indicator 16)

Proficiency in Reading. In 2000, American 15-year-olds had lower average scores than their Canadian counterparts on the PISA reading literacy scale, but no difference was detected between average U.S. 15-year-olds' performance compared to the performance of 15-year-olds in France, Italy, Germany, Japan, or the United Kingdom. The proportion of 15-year-olds performing at the highest level was higher in the United States than in Italy and the Russian Federation, but no difference was detected between the United States and Canada, France, Germany, Japan, and the United Kingdom. (Indicator 17)

Achievement in Civic Education. American 14-year-olds had higher scores on the assessment of total civic knowledge (comprised of a civic content and civic skills set of questions) than their counterparts in England, Germany, and the Russian Federation on the Civic Education Study (1999). No difference was detected in the scores of American and Italian 14-year-olds. (Indicator 19)

Completion of Upper Secondary Education

Graduation Rates from Upper Secondary Education. In 1999, the United States had a lower secondary school graduation rate than Japan, Germany, and France, but a higher rate than Italy. (Indicator 20)

Expenditures for Primary and Secondary Education

Expenditures per Student for Primary Education. Expenditures per student for primary education were higher in the United States than in the five other countries presented in 1994 and 1998. (Indicator 21)

Expenditures per Student for Secondary Education. Expenditures per student for secondary education were also higher in the United States than in the other five countries that reported data in 1994 and 1998. (Indicator 21)

Expenditures for Primary and Secondary Education as a Percent of Gross Domestic Product (GDP). While the United States had higher expenditures per student for primary and secondary education compared to the other countries presented, the United States placed in the middle of the countries presented based on public expenditures for primary and secondary education as a percent of GDP in 1998. With the addition of private expenditures for primary and secondary education, the United States still placed in the middle of the countries presented based on total public and private expenditures as a percent of GDP, falling behind France and Canada, about the same as in Germany, and ahead of Italy and Japan. (Indicator 22)

HIGHER EDUCATION

Access to Higher Education

Participation in Higher Education. The enrollment rate in higher education was higher in the United States than in the six countries presented in 1999. While the net enrollment rate in higher education was relatively stable in the United States, France, and Germany between 1994 and 1999, the rate increased in the United Kingdom. (Indicator 24)

Completion of Higher Education

Graduation from First University Programs of Higher Education. In 1999, the graduation rate from first university programs of medium length (3 to less than 5 years) was higher in the United States than in all G8 countries except the United Kingdom. In the United States, the graduation rate from first university programs that prepare students for advanced research training and highly qualified professions was more than three and a half times the graduation rate from technical and vocational programs that prepare students for direct entry into the labor market. (Indicator 25)

Science and Mathematics Degrees

First University Degrees in Science and Mathematics. In 1999, the United States awarded a smaller percentage of first university degrees in science than Canada, France, Germany, and the United Kingdom. About 10 percent of all first university degrees awarded in science in the United States were in mathematics and statistics—the lowest percentage of the five countries presented. (Indicator 26)

Expenditures for Higher Education

Expenditures per Student for Higher Education. In 1998, expenditures per student for higher education were higher in the United States than in all countries presented—more than twice as high as in Germany, Japan, and the United Kingdom, and more than two and one half times the expenditures per student in France. Between 1995 and 1998, all countries presented showed increases in average expenditures per student for higher education. During this period, the gap widened in average expenditures per student for higher education between the United States and the other countries presented. (Indicator 27)

Expenditures for Higher Education as a Percent of GDP. In 1998, public expenditures for higher education as a percent of GDP were higher in the United States than in the six other countries presented, except Canada. With the addition of private expenditures, the United States replaced Canada as the country with the highest expenditures for higher education as a percent of GDP. This contrasts with the position of the United States (in the middle of the six countries) for expenditures on primary and secondary education as a percent of GDP. (Indicators 22 and 28)

EDUCATION AND THE LABOR FORCE

Labor Market Outcome of Education

Labor Force Participation Rates. In 1999, adults ages 25 to 64 in the United States who completed upper secondary education (high school or its equivalent) had a higher labor force participation rate than high school noncompleters. The difference in labor force participation rates between upper secondary school completers and noncompleters was smaller in the United States than in Canada, Germany, Italy, and the United Kingdom, about the same as in France, and greater than in Japan. (Indicator 30)

Labor Force Participation Rates. In 1999, adults ages 25 to 64 in the United States, who completed a program of academic higher education had a labor force participation rate that was 8 percentage points higher than the participation rate of adults who completed high school or its equivalent. The difference in labor force participation rates between completers of academic higher education and completers of upper secondary education (high school in the United States) was smaller in the United States than in Germany, Italy, and Japan, about the same as in the United Kingdom, and greater than in Canada and France. (Indicator 30)

Average Earnings. In 1999, adults ages 25 to 64 in the United States who completed less than an upper secondary education (high school) earned, on average, about 67 percent of the earnings of adults who completed upper secondary education. The earnings disadvantage for noncompleters of upper secondary education was smaller in the United States than in the United Kingdom and Italy, but greater than in Germany, Canada, and France. (Indicator 31)

The average earnings of adults, ages 25 to 64 in the United States, who completed a program of academic higher education were, on average, about 180 percent of the earnings of completers of upper secondary education. The relative advantage of U.S. higher education completers over upper secondary education completers was greater than in the other four countries presented, although in every country represented those who completed academic higher education earned more than those who completely only upper secondary education. (Indicator 31)

INDICATORS PART I

Context of Education

YOUTH POPULATION

Key Findings: Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States

In 1999, the population ages 5 to 19 (children of primary- and secondary-school age) represented nearly 22 percent of the total population in the United States. The youth percentage of the total population in the United States was equal to that in the Russian Federation, but was higher than the youth population in all other G8 countries. The range in these countries was from 15 percent in Italy to 20 percent in Canada (figure 1a).

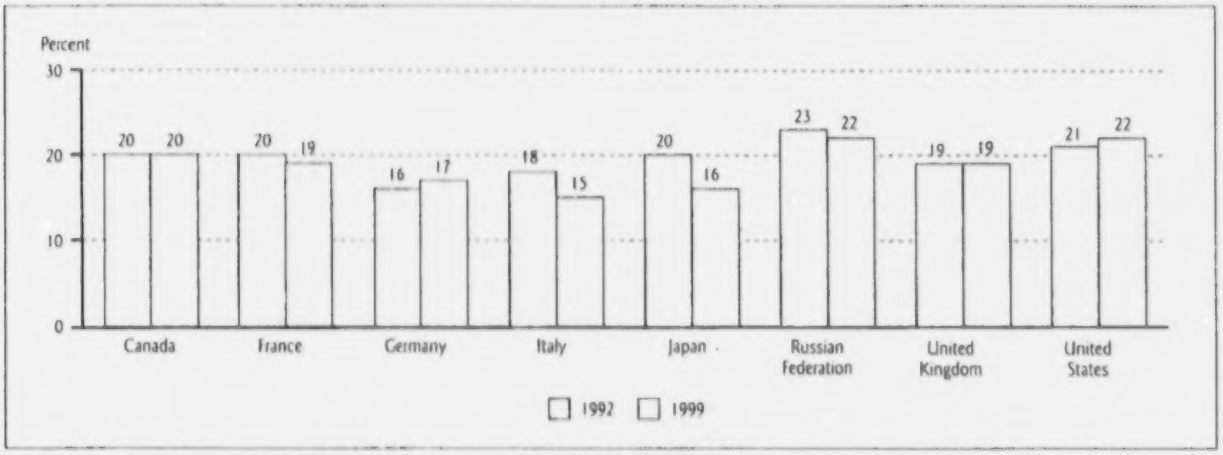
The youth population ages 5 to 19 grew by 11 percent in the United States between 1992 and 1999. The growth rate was higher in the United States than in the three other countries that experienced growth in this age group over this period—7 percent in Germany and Canada, and 5 percent in the United Kingdom (figure 1b).

In contrast with the United States, the youth populations in France, the Russian Federation, Italy, and Japan declined over this period—by 2 percent, 3 percent, 16 percent, and 18 percent, respectively (figure 1b).

Definition and Methodology

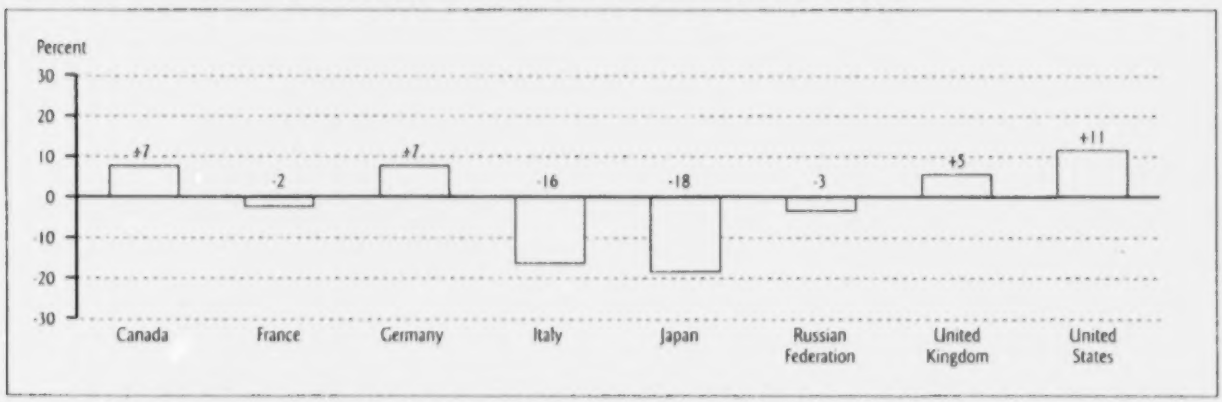
The percent of the population ages 5 to 19 in 1992 and 1999 is calculated by dividing the population ages 5 to 19 by the total population for each respective country. The percent change in population ages 5 to 19 is calculated by subtracting the population ages 5 to 19 in 1992 from this population in 1999 and dividing by the 1992 population ages 5 to 19.

Figure 1a. Percentage of the total population ages 5 to 19, by country: 1992 and 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales.
SOURCE: U.S. Census Bureau, International Database, 2001.

Figure 1b. Percentage change in the population ages 5 to 19, by country: 1992 and 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales.
SOURCE: U.S. Census Bureau, International Database, 2001.

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

In 1999, 87 percent of the adult population ages 25 to 64 in the United States had completed at least an upper secondary education—a higher percentage than in all other countries presented. While at least 75 percent of the adult population had completed at least an upper secondary education in Canada (79 percent), Japan (81 percent), and Germany (81 percent), the proportions were lower in the United Kingdom (62 percent), France (62 percent), and Italy (42 percent) (figure 2a).

In the United States, the proportion of younger adults (ages 25 to 34) that had completed at least an upper secondary education was about 7 percentage points higher than the proportion of older adults (ages 55 to 64). This relatively small difference (88 percent compared to 81 percent) reflects the fact that the United States has provided a relatively high level of access to upper secondary education for many years (figure 2a).

In contrast, several other countries presented have increased access to secondary education to a larger segment of their populations over the last few decades. This is evident in the larger differences in the proportion of older and younger adults who completed at least an upper secondary education in 1999—34 percentage points in France and Italy, 33 percentage points in Japan, and 25 percentage points in Canada (figure 2a).

As a result of increased access to secondary education in the other countries presented, the United States is in a different position on the proportion of young adults (ages 25 to 34) who completed at least an upper secondary education. For this age group, the 88 percent completion rate in the United States in 1999 was lower than the rate in Japan (93 percent). However, the proportion of secondary school completers in the young adult population was still a little higher in the United States than in Canada (87 percent) and Germany (85 percent), and much higher than in France (76 percent), the United Kingdom (66 percent), and Italy (55 percent), despite broadened access to secondary education in these countries (figure 2a).

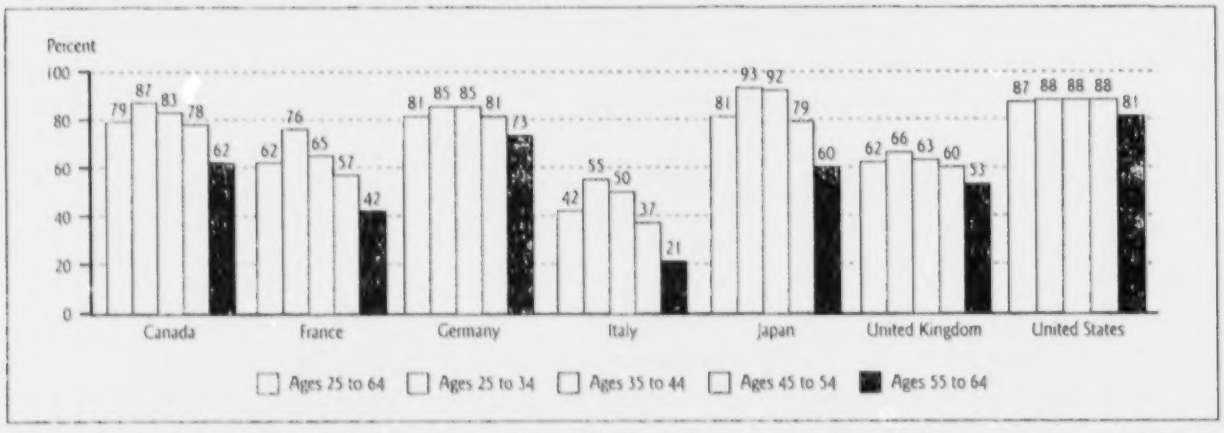
Comparisons of completion rates in higher education for the countries presented are very similar to completion rates in upper secondary education. In 1999, the United States had the highest proportion of adults ages 25 to 64 that had completed a first university degree (27 percent) among the countries presented. The completion rate in Canada (19 percent), with the second-highest completion rate of all countries presented, was 8 percentage points lower than the completion rate in the United States (figure 2b).

As with secondary education, most countries presented also increased access to higher education to a larger segment of their populations in recent years. Although the United States still had the highest proportion of adults ages 25 to 34 who had completed at least a first university degree in 1999 (29 percent), the gaps between the United States and Japan and between the United States and Canada was smaller for younger adults than for older adults. With Japan, the gap was 14 percentage points for adults ages 55 to 64 but only 6 percentage points for adults ages 25 to 34. Similarly, with Canada the gap was 9 percentage points for adults ages 55 to 64, but only 6 percentage points for adults ages 25 to 34 (figure 2b).

Definition and Methodology

This indicator shows the percent of the population ages 25 to 64 that completed a secondary education in 1999, and the percent of the population ages 25 to 64 that completed a degree in higher education. In the United States, the percentage of individuals who completed a secondary education includes individuals who received a high school diploma and individuals who obtained a General Educational Development (GED) award.

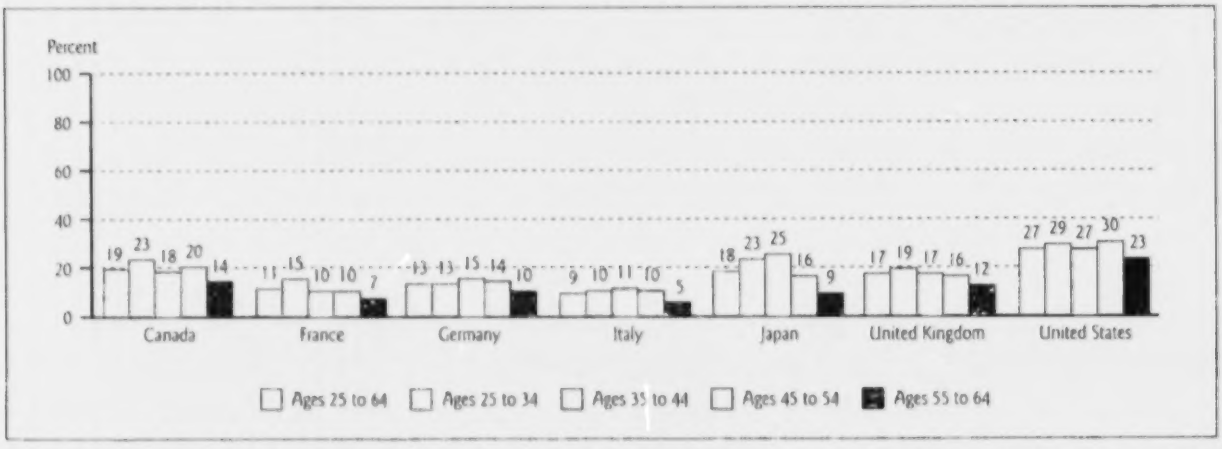
Figure 2a. Percentage of the population ages 25 to 64 that has completed at least an upper secondary education, by age group and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Data for the United Kingdom exclude individuals who have completed short programs that do not provide access to higher education, since these programs do not meet the minimum requirements to qualify as upper secondary education based on the international standard (ISCED). Data for the United States include individuals who have completed both a high school diploma and a General Educational Development (GED) award.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table A 2.2a.

Figure 2b. Percentage of the population ages 25 to 64 that has completed at least a first university degree, by age group and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Data for the United Kingdom exclude individuals who have completed short programs that do not provide access to higher education, since these programs do not meet the minimum requirements to qualify as upper secondary education based on the international standard (ISCED).

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table A 2.2b.

ENROLLMENT IN FORMAL EDUCATION

Key Findings: Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States

In 1999, the United States and six of the seven other countries presented had close to universal participation in school of children ages 5 to 14—the age range that generally corresponds with primary and lower secondary education in these countries. The Russian Federation was the only country presented in which the enrollment rate for this age group was below 80 percent (figure 3a).

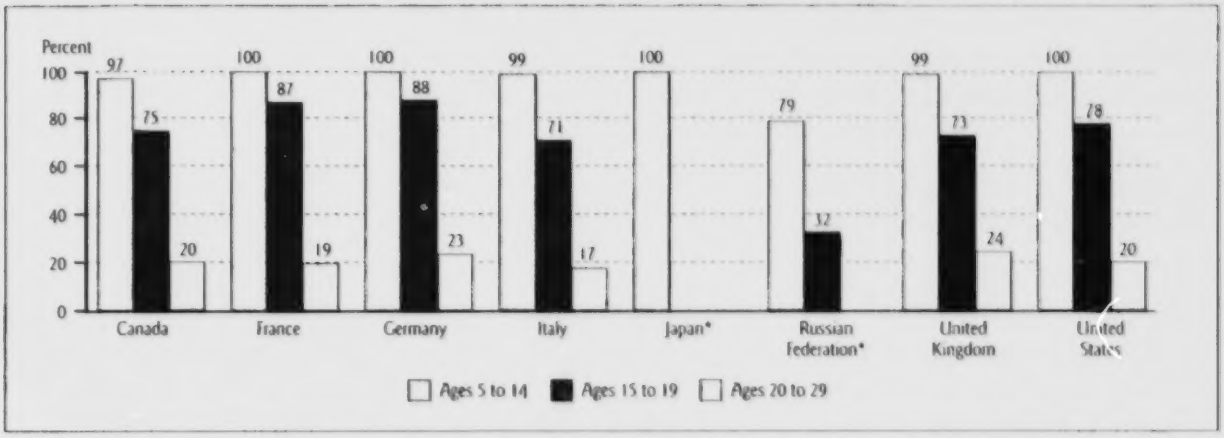
The United States had an enrollment rate of 78 percent in 1999 for youth ages 15 to 19—the age range that corresponds most closely with upper secondary education in the countries presented. The enrollment rate for the United States for this age group was higher than the rates for Canada, the United Kingdom, Italy, and the Russian Federation, but lower than the rates for France and Germany. Higher enrollment rates in France and Germany can partly be attributed to the later statutory graduation age from secondary school in these countries (19 in Germany and between 18 and 20 in France). A much higher proportion of 18- and 19-year olds are still enrolled in secondary school in France and Germany than in the United States (figure 3b).

Enrollment rates of 20- to 29-year olds—the age range that corresponds most closely to higher education in the countries presented—were less than 25 percent among the six countries reporting data. The United States had an enrollment rate of 20 percent for adults ages 20 to 29. This rate was lower than the rates in the United Kingdom (24 percent) and Germany (23 percent), the same as the rate in Canada (20 percent), but higher than the rates in France (19 percent) and Italy (17 percent) (figure 3a).

Definition and Methodology

The percentage of the population at given ages enrolled in education is called an "enrollment rate" in international comparisons. In this indicator, the term "enrollment rate" refers to "net enrollment rate." Net enrollment rate is defined as the number of students in a particular age group enrolled in education divided by the population of that same age group. Enrollments include all full-time and part-time students in public and private institutions, ages 5 to 14, 15 to 19, and 20 to 29, in 1999.

Figure 3a. Percentage of the population ages 5 to 29 enrolled in formal education, by age group and country: 1999

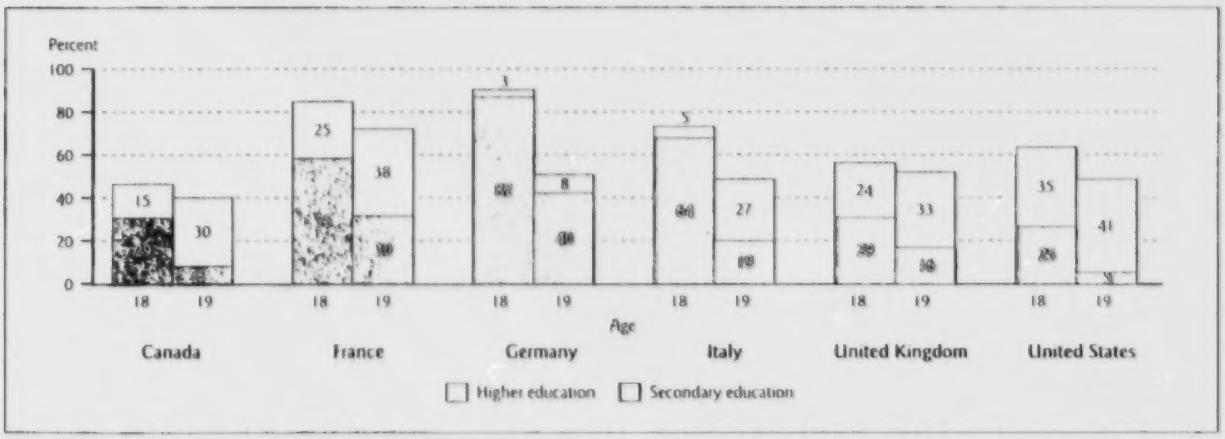


*Data not available for age groups 15 to 19 and 20 to 29 for Japan; data for age group 20 to 29 included in an unspecified "other" category for the Russian Federation.

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. For Japan and the United States, enrollment rates exceed 100 percent for students ages 5 to 14 due to different reference dates for school enrollment and population data.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table C 1.2.

Figure 3b. Percentage of the population ages 18 and 19 enrolled in secondary and higher education, by age group and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table C 1.3.

ENROLLMENT IN PRIVATE SCHOOLS AND HIGHER EDUCATION INSTITUTIONS

Key Findings: Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States

In 1999, 12 percent of primary school students in the United States were enrolled in private schools. Private school enrollment in primary education was higher in the United States than in six of the seven other countries presented; only France, with a private school enrollment of 15 percent, enrolled a higher proportion of primary school students in private schools than the United States (figure 4a).

About 10 percent of secondary school students in the United States were enrolled in private schools in 1999. The private enrollment proportion in secondary education was higher in the United States than in the Russian Federation (0 percent), Canada and Italy (6 percent), and Germany (7 percent), but lower than in Japan (18 percent), France (25 percent), and the United Kingdom (27 percent) (figure 4a).

In 1999, 7 percent of students in higher vocational-technical programs in the United States were enrolled in private institutions. The proportion of students in these programs in private institutions was lower in the United States than in all other countries represented except Canada, where 0 percent of students were enrolled in private institutions (figure 4b).

The picture was different in academic higher education programs, where over one-third (35 percent) of U.S. students enrolled in academic programs were in private institutions. The proportion of academic students enrolled in private institutions was higher in the United States than in France (10 percent), and Italy (12 percent), but well below the proportions in Japan (74 percent) and the United Kingdom (100 percent) (figure 4b).

Definition and Methodology

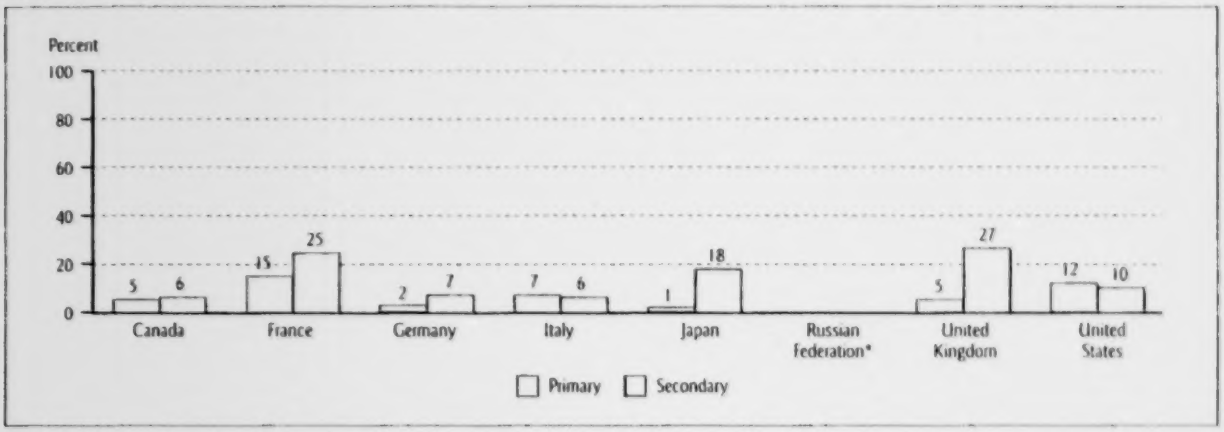
The percent of full-time and part-time private enrollment is calculated as the number of full-time and part-time students enrolled in private institutions at a particular level of education (primary, secondary or higher) divided by the number of full-time and part-time students enrolled in all public and private institutions at that level. The enrollment figures include students in all types of education programs (general, pre-vocational, and vocational).

Private schools include both government-dependent and independent private schools. Government-dependent private schools have private governing boards, but receive at least 50 percent of their funds from public sources. Independent private schools receive less than 50 percent of their funds from public sources.

Charter schools are reported as public schools in the United States; home schools are excluded from primary and secondary enrollments.

The classification of private schools in each country is based on the country's application of the international definitions to its own education system and OECD's approval of the classification. In the United Kingdom, institutions of higher education that would be classified as "public" institutions in other countries are classified as government-dependent private institutions. Consequently, all enrollments in higher education in the United Kingdom are counted as private enrollments.

Figure 4a. Percentage of primary and secondary enrollment in private schools, by country: 1999

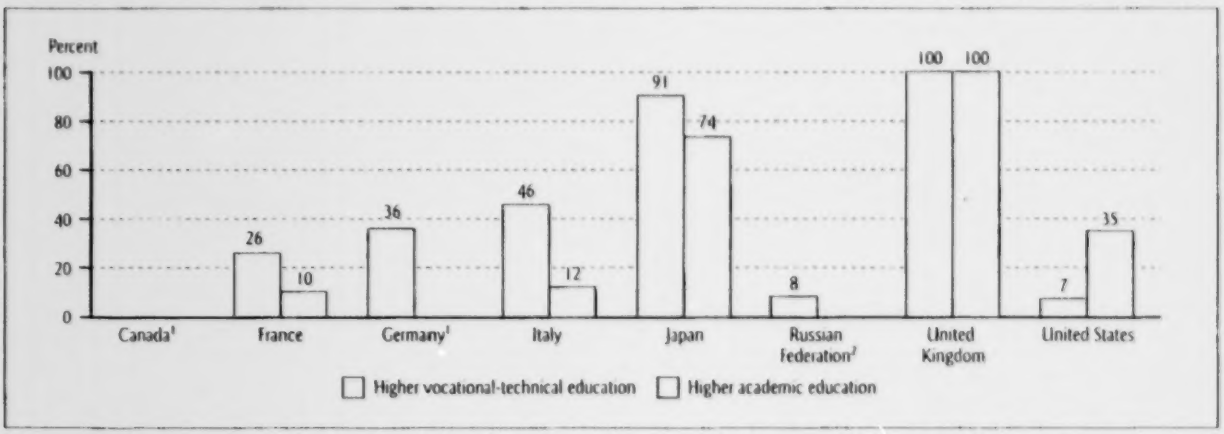


*Values for percentage of private enrollment in primary and secondary schools round to zero for the Russian Federation.

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001.

Figure 4b. Percentage of higher education enrollment in private institutions, by program type and country: 1999



[1]Values for private school enrollment in higher education round to zero for higher academic education for Canada and Germany and for higher vocational-technical education for Canada.

[2]Data not available on private enrollment in higher academic education programs for the Russian Federation.

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Institutions that would be classified as "public" institutions in other countries are classified as government-dependent private institutions in the United Kingdom. Consequently, all enrollments are counted as private enrollments.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table C 3.3.

INDICATORS PART II

Preprimary and Primary Education

EARLY CHILDHOOD ENROLLMENT

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

In 1999, 64 percent of children ages 3 to 5 were enrolled in center-based preprimary education in the United States. The enrollment rate in center-based preprimary education was higher in the United States than in Canada, but it was lower than the rates in France, Germany, Italy, and Japan. In France and Italy, there was nearly universal enrollment of 3- to 5-year-olds in preprimary education in 1999 (figure 5a).

Enrollment rates in preprimary education were higher in the United States than in the United Kingdom, but the United Kingdom had nearly universal enrollment of 5-year-olds in primary education. Overall, enrollment rates of 3-to-5-year-olds in preprimary and primary education were therefore higher in the United Kingdom than in the United States (figures 5a and 5b).

The enrollment rate in preprimary education in the United States was 38 percent for 3-year-olds and 67 percent for 4-year-olds in 1999. The United States had lower enrollment rates in preprimary education for 3- and 4-year-olds than all other countries presented, except Canada (figure 5b).

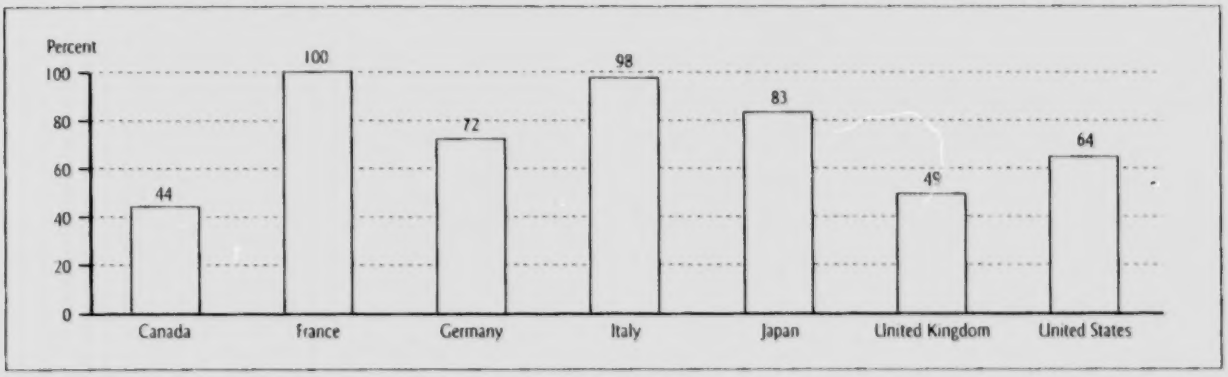
The enrollment rate of U.S. 5-year-olds in preprimary education was 89 percent in 1999. In addition, about 5 percent of 5-year-olds in the United States were already enrolled in primary education, bringing the total net enrollment rate of 5-year-olds in the United States to 94 percent. This rate was lower than the rates in all other countries presented, except Canada and Germany (figure 5b).

Definition and Methodology

The percentage of the population at a given age enrolled in education is called an "enrollment rate" in international comparisons. In this indicator, the term "enrollment rate" refers to "net enrollment rate." Net enrollment rate is defined as the number of students in a particular age group divided by the population of that same age group. Enrollments include all full-time and part-time students ages 3, 4, and 5 in public and private schools in 1999. Enrollment figures only include children who attend center-based institutions. They exclude children in home-based early childhood education.

Preprimary education in the international classification includes kindergarten and prekindergarten (see ISCED 1997). To conform to the international standard, the United States placed enrollment in kindergarten and prekindergarten classes in elementary schools in preprimary education.

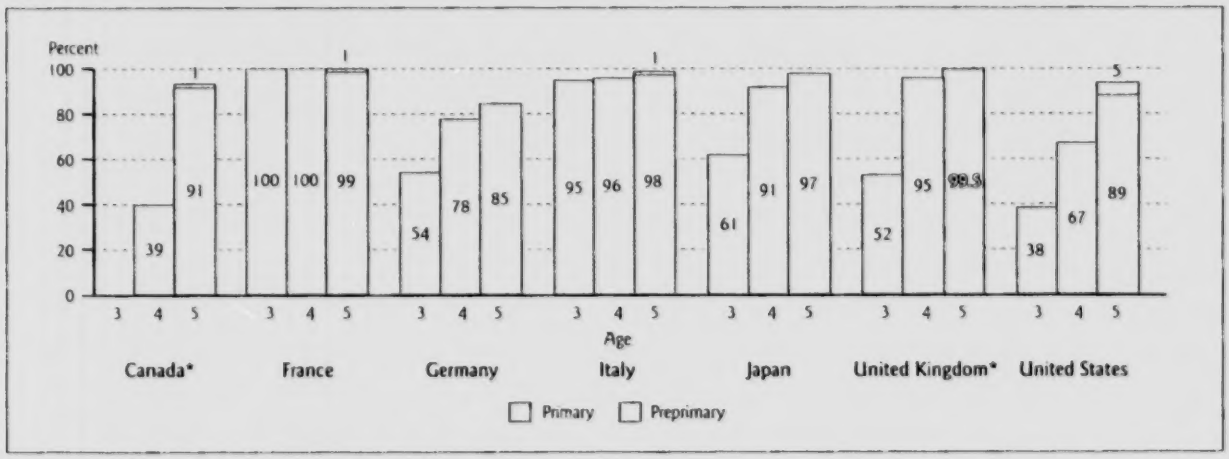
Figure 5a. Percentage of children ages 3 to 5 enrolled in preprimary education, by country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. To conform to the international standard, figures for preprimary education for the United States include enrollments in kindergarten and prekindergarten classes in elementary schools in preprimary education. Figures for the U.S. are from the Current Population Survey and do not correspond with figures published previously by OECD. Only 0.2 percent of 5-year-olds in the United Kingdom are enrolled in preprimary education; over 99 percent are enrolled in primary education.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001; U.S. Census Bureau, Current Population Survey, October 1998.

Figure 5b. Percentage of children ages 3 to 5 enrolled in preprimary and primary education, by selected age and country: 1999



*The preprimary enrollment for 3-year-olds in Canada and for 5-year-olds in the United Kingdom rounds to zero.

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. To conform to the international standard, figures for preprimary education for the United States include enrollments in kindergarten and prekindergarten classes in elementary schools in preprimary education. Figures for the U.S. are from the Current Population Survey and do not correspond with figures published previously by OECD. Only 0.2 percent of 5-year-olds in the United Kingdom are enrolled in preprimary education; over 99 percent are enrolled in primary education.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001; U.S. Census Bureau, Current Population Survey, October 1998.

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STUDENT/TEACHER RATIOS IN PRIMARY EDUCATION

Key Findings: Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States

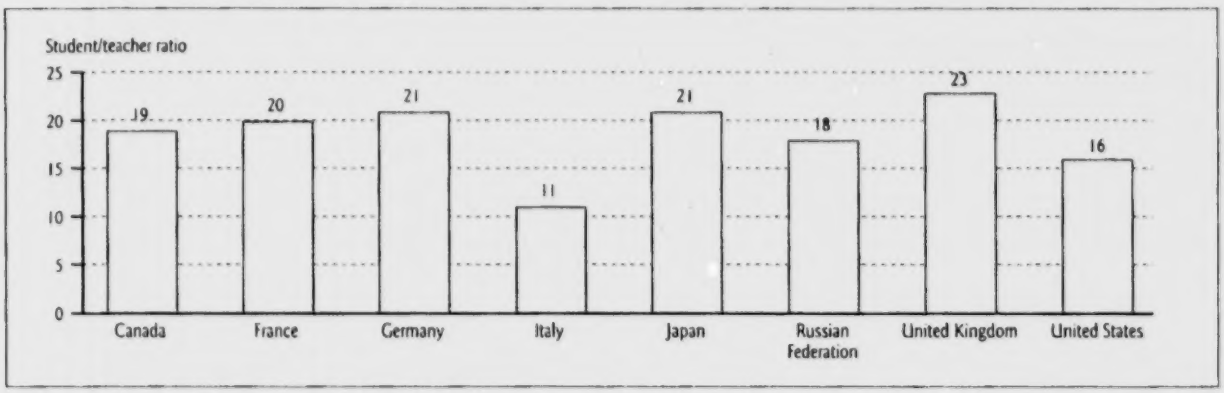
In 1999, the United States had the second-lowest student/teacher ratio of the countries presented in primary education—16 students per teacher. Only Italy had a lower student/teacher ratio (11 to 1) than the United States (figure 6).

In 1999, the student/teacher ratio in primary education in the United States was 5 students lower than the ratios in Germany and Japan (21 to 1), and 7 students lower than the ratio in the United Kingdom (23 to 1).

Definition and Methodology

Primary student/teacher ratios are obtained by dividing the number of full-time-equivalent students by the number of full-time-equivalent "teaching staff" in public and private primary schools. "Teaching staff" refers to professional personnel directly involved in teaching students. The classification includes classroom teachers, special education teachers, and other teachers who work with students either inside or outside a regular classroom. "Teaching staff" does not refer to non-professional personnel who support teachers in providing instruction to students, such as teachers' aides and other paraprofessionals.

Figure 6. Ratio of full-time-equivalent students to full-time-equivalent teachers in public and private primary schools, by country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table D 5.1.

PUBLIC SCHOOL TEACHERS' SALARIES IN PRIMARY EDUCATION

Key Findings: England, France, Germany, Italy, Scotland, United States

Public primary school teachers with minimum qualifications in the United States earned the second-highest starting salary ($25,707) of the six countries presented in 1999; only Germany reported higher starting public primary school teacher salaries ($29,697).[4] The average starting salaries of U.S. public primary school teachers were 87 percent of the starting salaries of German teachers with minimum qualifications (figure 7). This means that taking into account differences in price levels between Germany and the United States, German public primary teachers with minimum qualifications can buy more than their counterparts in the United States.

In 1999, the average starting salary for public primary teachers in the United States was 34 percent higher than the salary of teachers at this same level with minimum qualifications in Italy, the country with the lowest starting teacher salary ($19,188). The starting salary for public primary teachers in the United States was also 30 percent higher than the starting salaries of teachers in France ($19,761) and Scotland ($19,765), and 29 percent higher than the starting salaries of teachers in England ($19,999).

Public primary teachers in the United States with minimum qualifications at the top of the salary scale had higher salaries ($43,094) than teachers in all other countries reporting data in 1999. Salaries of U.S. teachers at the top of the salary scale were 54 percent higher than the salaries of their peers in Italy, the country with the lowest teacher salaries among countries reporting data, and 10 percent higher than the salaries of teachers in France, the country with the second-highest teacher salaries.

In the United States, public primary teachers at the top of the salary schedule with minimum qualifications earned about 68 percent more than starting teachers. Only in France did the difference between starting and maximum salaries of primary teachers with minimum qualifications exceed the difference in the United States (99 percent compared to 68 percent).

Definition and Methodology

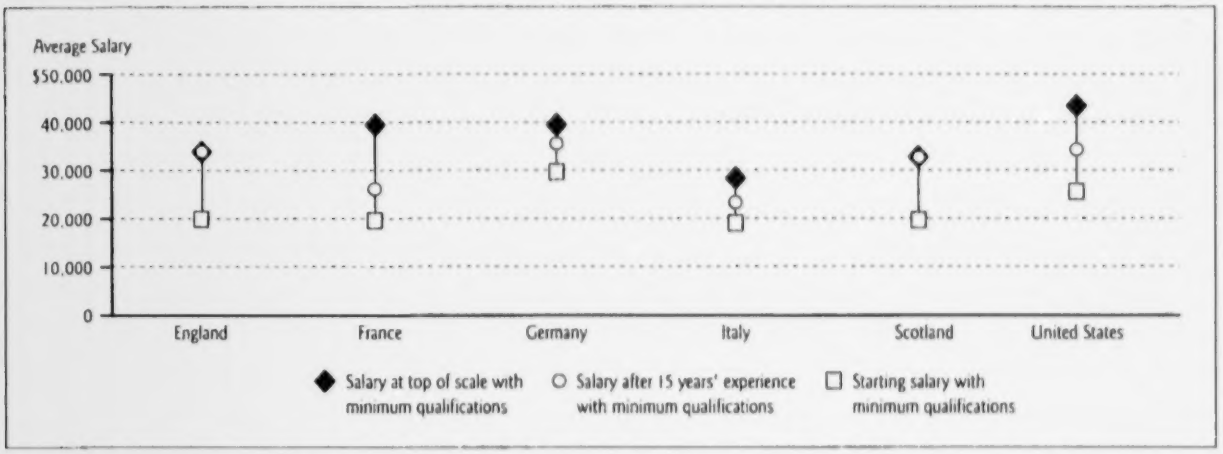
Annual statutory teachers' salaries in public primary schools in equivalent U.S. dollars, converted using Purchasing Power Parities (PPPs). PPPs exchange rates equalize the purchasing power of different currencies, meaning that when a given sum of money is converted into different currencies at the PPPs exchange rates, it will buy the same basket of goods and services in all countries. Statutory salaries refer to scheduled salaries according to official pay scales. The salaries reported are defined as gross salaries (total sum of money that is paid by the employer for the labor supplied) excluding the employer's contribution to social security and pension (according to existing salary scales). Salaries are "before tax," i.e., before deductions for income taxes. Gross teachers' salaries were converted to U.S. dollars using national PPPs exchange rate data from the OECD National Accounts 1999.

The starting salaries reported refer to the average scheduled gross salary per year for a full-time teacher with the minimum qualifications necessary to be fully qualified at the beginning of his or her teaching career. Minimum qualifications can vary by country. Salaries after 15 years' experience refer to the scheduled annual salary of a full-time classroom teacher with the minimum training necessary to be fully qualified and with 15 years' experience. The maximum salaries reported refer to the scheduled maximum annual salary (top of the salary scale) of a full-time classroom teacher with the minimum training to be fully qualified for his or her job.

In countries with centralized systems of education, there are typically national salary schedules. In countries like the United States, with decentralized education systems, local or regional governments establish their own salary schedules. Estimates of national salary schedules in the United States were derived from the Schools and Staffing Survey for 1993–94, with adjustments for inflation for 1998–99.

[4]The United Kingdom is one of the countries included in this study. Most indicators are reported for the country as a whole, but this indicator reports salaries separately for England and Scotland, two of the four units in the United Kingdom. The other two units are Wales and Northern Ireland.

Figure 7. Public primary teachers' average salaries in U.S. dollars, by level of experience and country: 1999



NOTE: Average salaries are gross salaries (i.e., before deductions for income taxes), and are converted to U.S. dollars using 1999 national Purchasing Power Parities (PPPs) exchange rate data.
SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table D 1.1a

Key Findings: Canada, England, Japan, Scotland, United States

In 1994–95,[1] teachers of fourth-grade mathematics in the United States most frequently reported using two organizational approaches in every mathematics lesson: students working individually with assistance from the teacher; and working together as a class, with the teacher teaching the whole class. Fifty-five percent of U.S. students had a mathematics teacher who reported using the first approach and 54 percent of students had a mathematics teacher who reported using the second (figure 8a).

In Scotland and England, students working individually with assistance from the teacher was the approach reported more frequently than any of the other methods. Forty-four percent of Scottish fourth-graders and 55 percent of students in England had a mathematics teacher who reported using this approach (figure 8a).

Fourth-grade mathematics teachers in Japan, in contrast, reported using whole-class instruction more frequently than other organizational approaches. Seventy-eight percent of Japanese fourth-graders had a mathematics teacher who reported working together as a class, with the teacher teaching the whole class. However, one half of Japanese students had a mathematics teacher who reported that they work together as a class, with students responding to one another, as an organizational approach (figure 8a).

In 1994–95, whole-class instruction and students working together as a class with students responding to one another were the two most frequently reported organizational approaches used in science instruction in the United States. Forty-seven percent of fourth-grade students had a science teacher who reported using the first approach and 35 percent the second. In contrast, 20 percent of U.S. fourth-graders had a science teacher who reported that students work individually, with assistance from the teacher (figure 8b).

Japanese fourth-grade students had science teachers who also reported the use of whole class instruction and students working with students responding to one another most frequently. Sixty-eight percent of Japanese fourth-graders had a science teacher who reported using the first approach and 51 percent the second (figure 8b).

Definition and Methodology

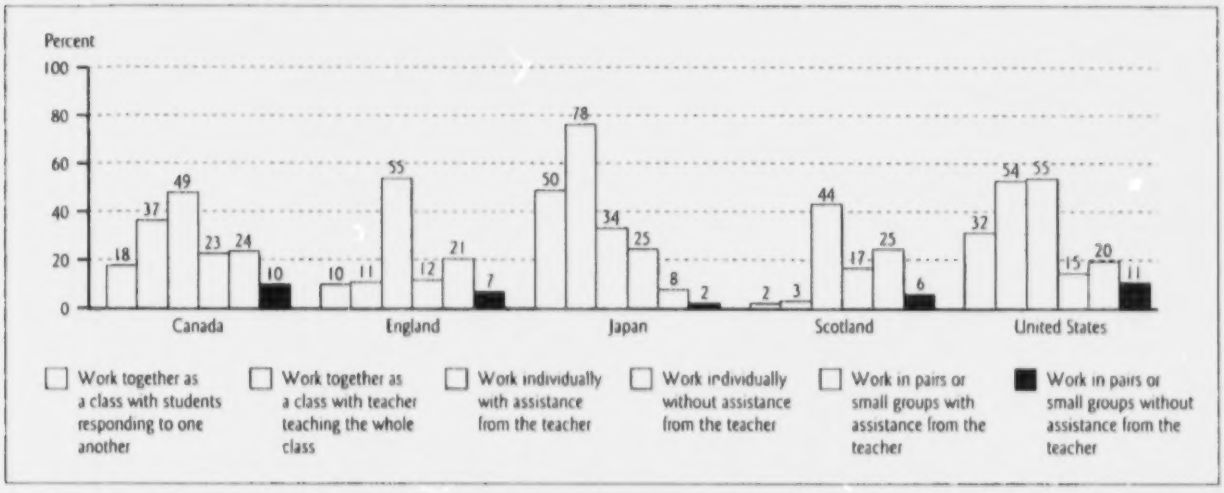
Percent of fourth-grade students participating in the Third International Mathematics and Science Study whose mathematics and science teachers reported using various organizational approaches in their lessons. In some cases, these may be the same teacher.

The TIMSS study included the fifth year of formal schooling in England and Scotland in 1994–95.

Whole class instruction is a strategy in which the class works together, with the teacher teaching the whole class.

[1]Fourth-grade data are not available in the Third International Mathematics and Science Study 1999 report and will be available in the Trends in International Mathematic and Science Study 2003 report.

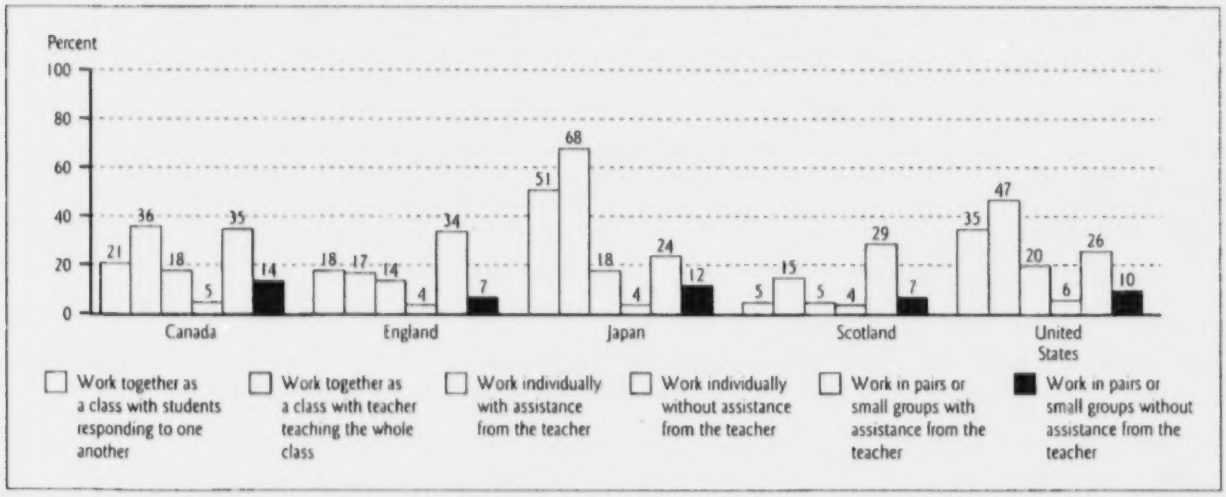
Figure 8a. Percentage of fourth-grade students whose mathematics teachers reported using selected organizational approaches in most or every lesson, by country: 1994–95



NOTE: Values may not add to 100 percent because teachers could respond to as few or as many categories as they wished and because the only response category displayed here is "most or every lesson." Fourth-grade in most countries; Year 5 in England and Scotland. In the United States, teacher response data available for 70–84 percent of students. The United States also did not satisfy one or more guidelines for sample participation rates, age/grade specifications, or classroom sampling procedures. Some organizational approaches are excluded in the figure.

SOURCE: International Association for the Evaluation of Educational Achievement, *Mathematics Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Figure 5.5.

Figure 8b. Percentage of fourth-grade students whose science teachers reported using selected organizational approaches in most or every lesson, by country: 1994–95



NOTE: Values may not add to 100 percent because teachers could respond to as few or as many categories as they wished and because the only response category displayed here is "most or every lesson." Fourth-grade in most countries; Year 5 in England and Scotland. In Scotland and the United States, teacher response data were available for 70–84 percent of students. The United States also did not satisfy one or more guidelines for sample participation rates, age/grade specifications, or classroom sampling procedures. Some organizational approaches are excluded in the figure.

SOURCE: International Association for the Evaluation of Educational Achievement, *Science Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Figure 5.3.

PRIMARY STUDENTS' ATTITUDES TOWARDS MATHEMATICS AND SCIENCE

Key Findings: Canada, England, Japan, United States

About 81 percent of U.S. fourth-grade students reported either a positive or strongly positive attitude towards mathematics in 1994–95.[6] The proportion of U.S. fourth-grade students reporting positive or strongly positive attitudes towards mathematics was higher than in Japan (74 percent), but lower than in Canada, where 87 percent reported positive or strongly positive attitudes towards mathematics (figure 9a).

The proportion of U.S. fourth-grade students reporting positive or strongly positive attitudes towards science (84 percent) was lower than in Japan (88 percent), but higher than in England,[7] where 80 percent reported positive or strongly positive attitudes towards science. There was no difference detected in the proportion of U.S. and Canadian fourth-grade students reporting positive or strongly positive attitudes toward science (figure 9b).

Definition and Methodology

The TIMSS study included the fifth year of formal schooling in England and Scotland in 1994–95.

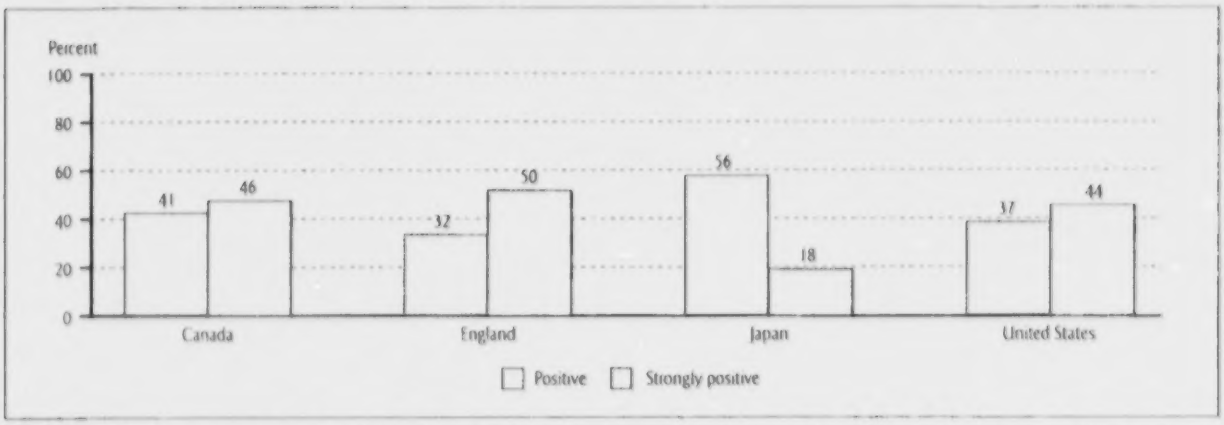
The index of overall attitudes towards mathematics is based on average of responses to the following statements: 1) I like mathematics; 2) I enjoy learning mathematics; 3) Mathematics is boring (reverse scale).

The index of overall attitudes towards science is based on average of responses to the following statements: 1) I like science; 2) I enjoy learning science; 3) Science is boring (reverse scale).

[6]Fourth-grade data are not available in the Third International Mathematics and Science Study 1999 report and will be available in the TIMSS 2003 report.

[7]The United Kingdom is one of the countries included in this study. Most indicators are reported for the country as a whole, but this indicator only reports student attitudes towards mathematics and science for England, one of the four units in the United Kingdom. The other three units are Wales, Scotland, and Northern Ireland.

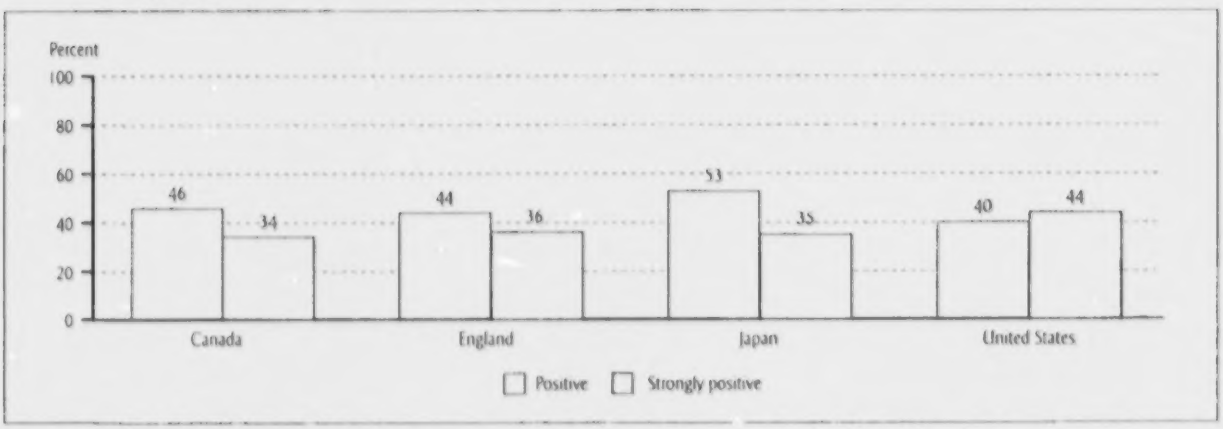
Figure 9a. Percentage of fourth-grade students with positive or strongly positive attitudes towards mathematics, by country: 1994–95



NOTE: Fourth-grade in most countries; year 5 in England. Index of overall attitudes towards mathematics is based on average of responses to the following statements: 1) I like mathematics; 2) I enjoy learning mathematics; 3) Mathematics is boring (reversed scale).

SOURCE: International Association for the Evaluation of Educational Achievement, *Mathematics Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Table 4.15.

Figure 9b. Percentage of fourth-grade students with positive or strongly positive attitudes towards science, by country: 1994–95



NOTE: Fourth-grade in most countries; year 5 in England. Index of overall attitudes towards science is based on average of responses to the following statements: 1) I like science; 2) I enjoy learning science; 3) Science is boring (reversed scale).

SOURCE: International Association for the Evaluation of Educational Achievement, *Science Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Table 4.15.

MATHEMATICS AND SCIENCE ACHIEVEMENT IN PRIMARY EDUCATION

Key Findings: Canada, England, Japan, Scotland, United States

U.S. fourth-grade students had a mean score of 545 in mathematics on the 1994–95 Third International Mathematics and Science Study (TIMSS).[8] The mean score of U.S. fourth-grade students was lower than the mean score of Japanese students (597), and higher than the mean scores of students in Canada (532), Scotland (520) and England (513)[9] (table 10a).

In science, no difference was detected between the average performance of U.S. fourth-grade students (565) and the average performance of students in Japan (574), but the average performance of U.S. students was higher than the performance of students in England (551), Canada (549), and Scotland (536) (table 10b).

Definition and Methodology

This indicator shows mean scores in mathematics and science of fourth-grade students who participated in the Third International Mathematics and Science Study, 1994–95.

[8]Fourth-grade data are not available in the Third International Mathematics and Science Study 1999 report and will be available in the TIMSS 2003 report.

[9]The United Kingdom is one of the countries included in this study. Most indicators are reported for the country as a whole, but this indicator reports TIMSS scores separately for England and Scotland, two of the four units in the United Kingdom. The other two units are Wales and Northern Ireland.

Table 10a. Mean mathematics achievement scores of fourth-grade students, by country: 1994–95

Country	Mean score
Canada	532
England	513
Japan	597
Scotland	520
United States	545

NOTE: Fourth-grade in most countries; year 5 in England and Scotland. Dark shading signifies a higher score than the U.S. score; light shading signifies a lower score.

SOURCE: International Association for the Evaluation of Educational Achievement, *Mathematics Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Table 1.1.

Table 10b. Mean science achievement scores of fourth-grade students, by country: 1994–95

Country	Mean score
Canada	549
England	551
Japan	574
Scotland	536
United States	565

NOTE: Fourth-grade in most countries; year 5 in England and Scotland. Light shading signifies a lower score than the U.S. score. No shading shows no statistical difference from the U.S. score.

SOURCE: International Association for the Evaluation of Educational Achievement, *Science Achievement in the Primary School Years: Third International Mathematics and Science Study*, 1997, Table 1.1.

INDICATORS PART III

Secondary Education

ENROLLMENT IN UPPER SECONDARY EDUCATION

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

In the United States and the other six countries presented, the large majority of 17-year-olds who were still in school were enrolled in upper secondary education in 1999. Eighty-one percent of 17-year-olds in the United States were enrolled in upper secondary education and only 1 percent was enrolled in higher education. Canada was the only country presented in which over 3 percent of 17-year-olds were already enrolled in higher education (figure 11).

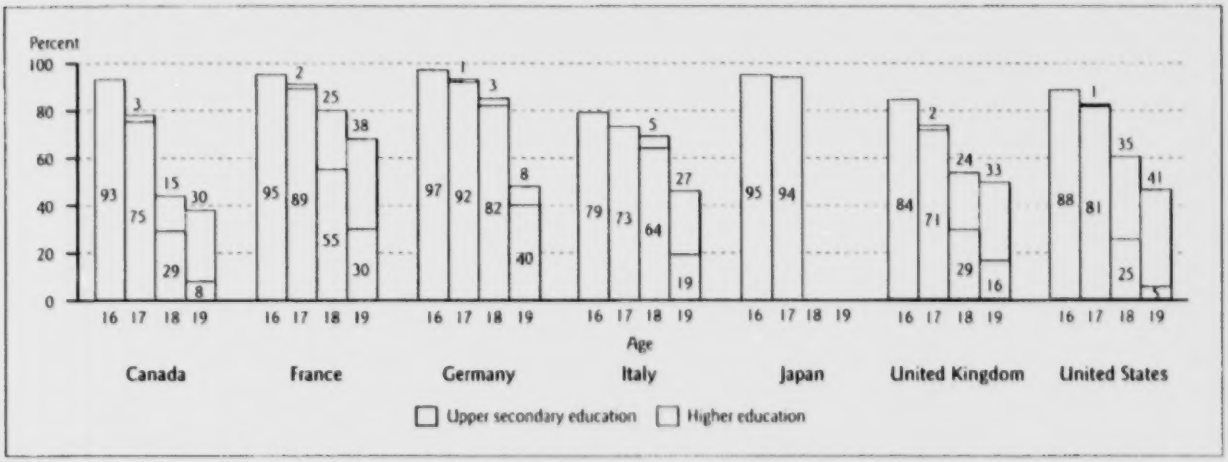
With an upper secondary enrollment rate of 81 percent among 17-year-olds, the United States ranked 4th among the countries presented on this indicator, behind Japan, Germany, and France, which had upper secondary enrollment rates of 94, 92, and 89 percent, respectively, for this age. A higher proportion of 17-year-olds were enrolled in upper secondary education in the United States than in Canada (75 percent), the United Kingdom (71 percent), and Italy (73 percent).

While most 17-year-olds in the United States are still enrolled in upper secondary education, upper secondary enrollment drops off sharply after age 17, as most 18- and 19-year-olds who are still in school have already started higher education. In 1999, 25 percent of 18-year-olds in the United States were still enrolled in upper secondary education, while 35 percent were enrolled in higher education. In Germany and Italy, in contrast, 82 and 64 percent of 18-year-olds, respectively, were still enrolled in upper secondary education.

Definition and Methodology

The percentage of the population at given ages enrolled in education is called an "enrollment rate" in international comparisons. In this indicator, the term "enrollment rate" refers to "net enrollment rate." Net enrollment rate is defined as the number of students in a particular age group enrolled in education divided by the population of that same age group. Enrollments include all full-time and part-time students in public and private upper secondary education, age 17 in 1995, 1996, 1998, and 1999 and students in public and private upper secondary education and higher education, ages 16, 17, 18, and 19 in 1999.

Figure 11. Percentage of the population ages 16 to 19 enrolled in public and private upper secondary and higher education, by selected age and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Higher education enrollment rates not available for: 16-year-olds in all countries; 17-year-olds in Italy and Japan; 18- and 19-year-olds in Japan. Upper secondary enrollment rates not available for 18- and 19-year-olds in Japan.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table C 1.3.

STUDENT/TEACHER RATIOS IN SECONDARY EDUCATION

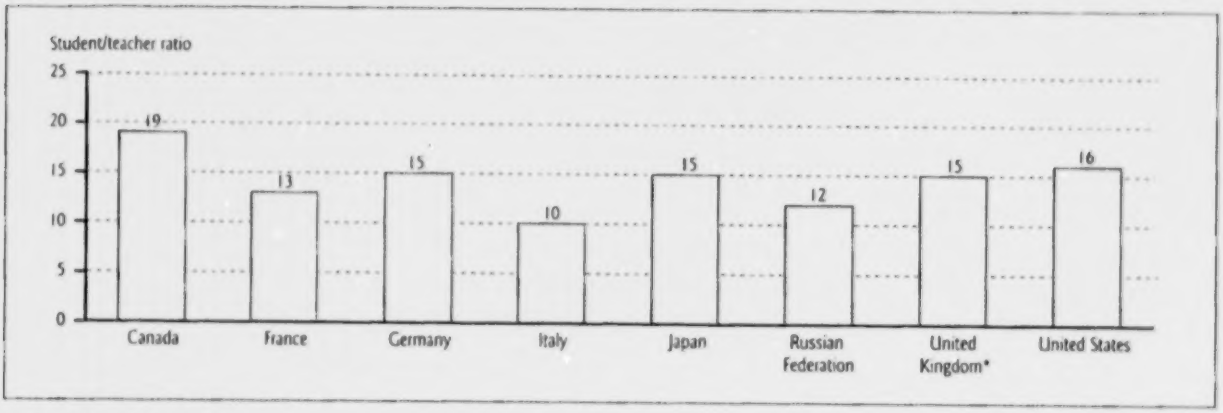
Key Findings: Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States

In 1999, the United States had a student/teacher ratio of 16 to 1 in secondary education. Only Canada had a higher student/teacher ratio than the United States (figure 12).

Definition and Methodology

Secondary student/teacher ratios are obtained by dividing the number of full-time equivalent students in public and private secondary schools by the number of full-time equivalent "teaching staff" in these schools. "Teaching staff" refers to professional personnel directly involved in teaching students. The classification includes classroom teachers; special education teachers; and other teachers who work with students either inside or outside a regular classroom. "Teaching staff" does not refer to non-professional personnel who support teachers in providing instruction to students, such as teachers' aides and other paraprofessionals.

Figure 12. Ratio of full-time-equivalent students to full-time-equivalent teachers in public and private secondary schools, by country: 1999



*Includes only general programs.

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table D 5.1.

PUBLIC SCHOOL TEACHERS' SALARIES IN UPPER SECONDARY EDUCATION

Key Findings: England, France, Germany, Italy, Scotland, United States

Public upper secondary general education teachers with the minimum qualifications in the United States earned the second-highest starting salary ($25,405) of the countries presented in 1999; only Germany reported higher starting teacher salaries ($35,546).[10] The starting salaries of U.S. public secondary teachers with minimum qualifications were 71 percent of the starting salaries of German teachers with minimum qualifications (figure 13a).

In the United States, public upper secondary teachers at the top of the salary schedule with minimum qualifications earned an average of $44,394 in 1999—about 75 percent more than starting teachers. Only in France did the difference between starting and maximum salaries of public secondary teachers with minimum qualifications exceed the difference in the United States (about 90 percent). However, public upper secondary teachers in the United States at the top of the salary scale with minimum qualifications still generally earned less than German teachers with minimum qualifications ($49,445).

While public upper secondary general education teachers in England and Scotland with minimum qualifications reach the top of the salary scale after 15 years or less, it takes longer for U.S. teachers to reach the top of the salary scale (data not shown). However, U.S. public upper secondary teachers at the top of the salary scale earn more than similar teachers in Scotland and England. In 1999, the salary of U.S. teachers at the top of the scale was 35 percent higher than the salaries of teachers in Scotland and 32 percent higher than salaries in England.

Definition and Methodology

Annual statutory teachers' salaries in public institutions in upper secondary education, general programs, in equivalent U.S. dollars, converted using Purchasing Power Parities (PPPs).

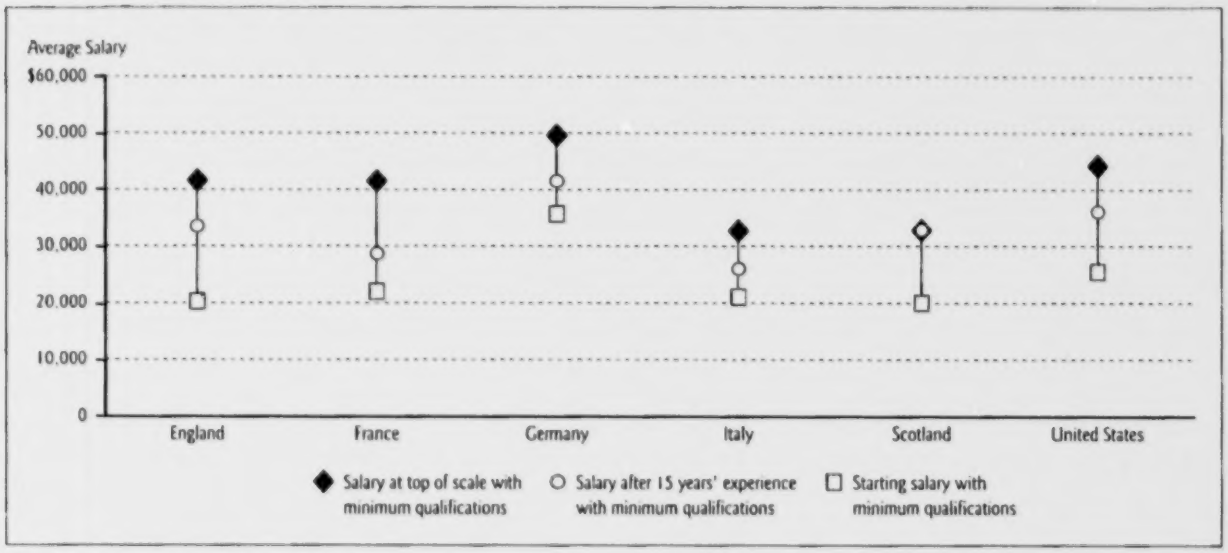
Statutory salaries refer to scheduled salaries according to official pay scales. The salaries reported are defined as gross salaries (total sum of money that is paid by the employer for the labor supplied) excluding the employer's contribution to social security and pension (according to existing salary scales). Salaries are "before tax," i.e., before deductions for income taxes. Gross teachers' salaries were converted to U.S. dollars using national PPPs exchange rate data from the OECD National Accounts 1999.

The starting salaries reported refer to the average scheduled gross salary per year for a full-time teacher with the minimum qualifications necessary to be fully qualified at the beginning of his or her teaching career. Salaries after 15 years' experience refer to the scheduled annual salary of a full-time classroom teacher with the minimum qualifications necessary to be fully qualified and with 15 years' experience. The maximum salaries reported refer to the scheduled maximum annual salary (top of the salary scale) of a full-time classroom teacher with the minimum qualifications to be fully qualified for his or her job.

In countries with centralized systems of education, there are typically national salary schedules. In countries like the United States, with decentralized education systems, local or regional governments establish their own salary schedules. Estimates of national salary schedules in the United States were derived from the Schools and Staffing Survey for 1993–94, with adjustments for inflation for 1998–99.

[10]The United Kingdom is one of the countries included in this study. Most indicators are reported for the country as a whole, but this indicator reports salaries separately for England and Scotland, two of the four units of the United Kingdom. The other two units are Wales and Northern Ireland.

Figure 13. Public upper secondary general teachers' average salaries in U.S. dollars, by level of experience and country: 1999



NOTE: Average salaries are gross salaries (i.e., before deductions for income taxes) and are converted to U.S. dollars using 1999 national Purchasing Power Parities (PPPs) exchange rate data.
SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table D 1.1.c.

FREQUENCY OF BEHAVIOR PROBLEMS

Key Findings: Canada, Italy, Japan, Russian Federation, United States

This indicator presents school principals' reports of both the incidence of behaviors that threaten a safe and orderly environment and their perceptions of these behaviors as a "serious" problem. It should be noted that what constitutes a "serious" problem may differ from one country to another. A relatively low number of threatening behaviors may be perceived as a "serious" problem in one country, but not in another, due to cultural differences and other factors.

In 1999, U.S. principals of schools that had eighth-grade students reported two behaviors most frequently that threaten a safe and orderly environment: classroom disturbances and intimidation or verbal abuse of other students. Sixty-nine percent of eighth-grade students were in schools whose principals reported at least a weekly occurrence of a classroom disturbance and 46 percent were in schools whose principals reported intimidation or verbal abuse (figure 14a).

While 69 percent of U.S. eighth-graders were in schools whose principals reported that classroom disturbances occurred at least weekly, only 11 percent were in schools whose principals reported these disturbances as a serious problem. This was also the case in Canada where 60 percent of eighth-graders were in schools whose principals reported at least a weekly disturbance and 21 percent were in schools where these were reported as a serious problem (figure 14b).

While a higher proportion of eighth-grade students in Japan were in schools whose principals reported that theft, vandalism, and cheating were serious problems, the incidence of these behaviors was still quite low. This was also the case with physical injury to other students and intimidation or verbal abuse of teachers.

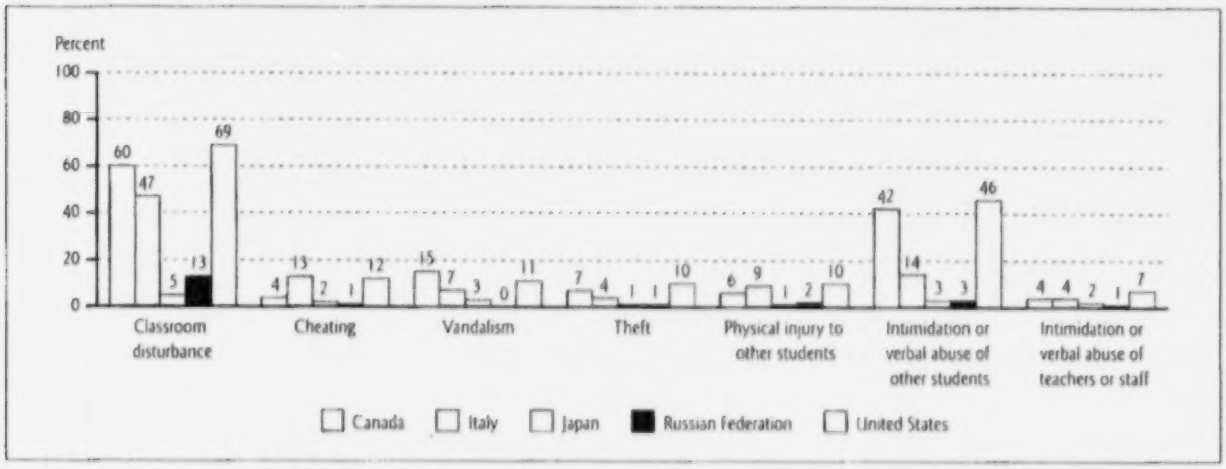
Compared to U.S. eighth-graders, a higher percentage of Japanese students were in schools in which the principals perceived problems to be serious. Twenty-five percent of Japanese eighth-graders were in schools in which principals perceived that theft was a serious problem, 23 percent were in schools in which vandalism was perceived as a serious problem, and 13 percent were in schools in which cheating was perceived as a serious problem. The figures for the United States were 2 percent, 1 percent, and 1 percent, respectively. In addition, 22 percent of Japanese eighth-graders were in schools in which physical injury to other students was perceived as a serious problem and 25 percent were in schools in which intimidation or verbal abuse of other students was perceived as a serious problem, compared to the 3 percent and 16 percent, respectively, of U.S. students. Similarly, 23 percent of Japanese eighth-graders were in schools in which intimidation or verbal abuse of teachers was seen as a serious problem, compared to 3 percent of U.S. students.

Definition and Methodology

The frequency and seriousness of student behavior threatening a safe school environment in 1999, based on the percentage of students whose schools reported that vandalism, theft, physical injury to other students, intimidation or verbal abuse of other students, and intimidation or verbal abuse of teachers or staff "occur at least weekly" and are identified as a "serious problem."

Respondents were specifically asked the following question: "To what extent do these behaviors present a problem in your school? Check one box for Frequency and one box for Seventy on each line." The behaviors specified in the question were: arriving late at school; absenteeism (i.e., unjustified absences); skipping class hours/periods; violating dress code; classroom disturbance; cheating; profanity; vandalism; theft; intimidation or verbal abuse of other students; physical injury to other students; intimidation or verbal abuse of teachers or staff; physical injury to teachers or staff; tobacco use/possession; alcohol use/possession; illegal drug use/possession; weapon use/possession; inappropriate sexual behavior. The periods for Frequency included: never; rarely; monthly; weekly; daily. The categories for Severity of the problem included: not a problem; minor problem; serious problem.

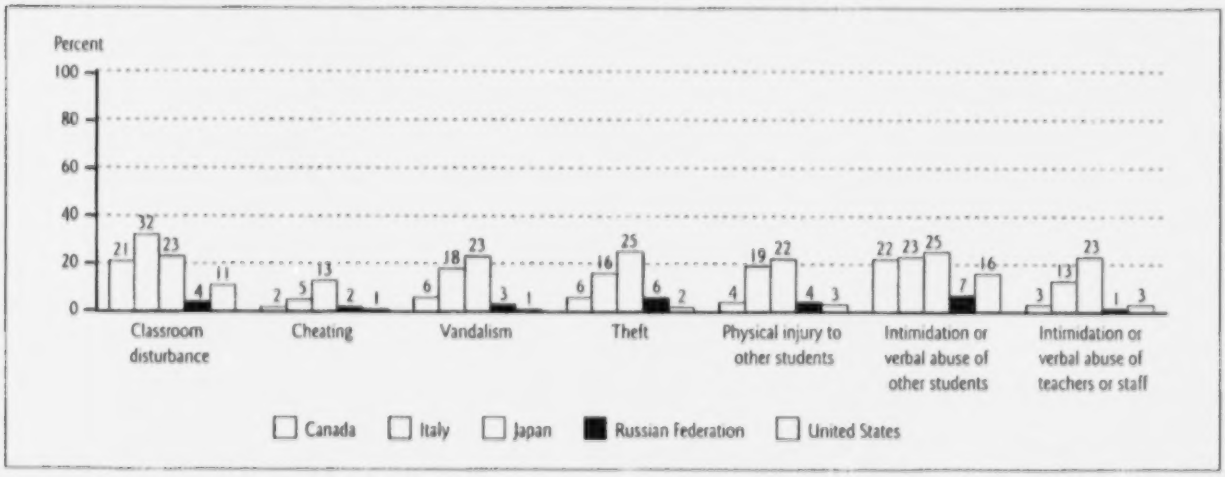
Figure 14a. Percentage of eighth-grade students whose principals reported that behavior threatening a safe and orderly environment occurs at least weekly, by selected behavior and country: 1999



NOTE: Response data for the United States are only available for 70-84 percent of students.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Mathematics Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibits 7.7 and 7.8.

Figure 14b. Percentage of eighth-grade students whose principals reported that behavior threatening a safe and orderly environment is a serious problem, by selected behavior and country: 1999



NOTE: Response data for the United States are only available for 70-84 percent of students.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Mathematics Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibits 7.7 and 7.8.

SECONDARY STUDENTS' ATTITUDES TOWARDS MATHEMATICS AND SCIENCE

Key Findings: Canada, England, Italy, Japan, United States

In 1999, just over one-third (35 percent) of U.S. eighth-grade students had a high score on the index of positive attitudes towards mathematics. The proportion of students in the United States with a high positive index score was below the proportion in England (41 percent) and above the proportion in Japan (9 percent). No difference was detected between the proportion of students with a high positive index score in the United States, Canada, and Italy (figure 15a).

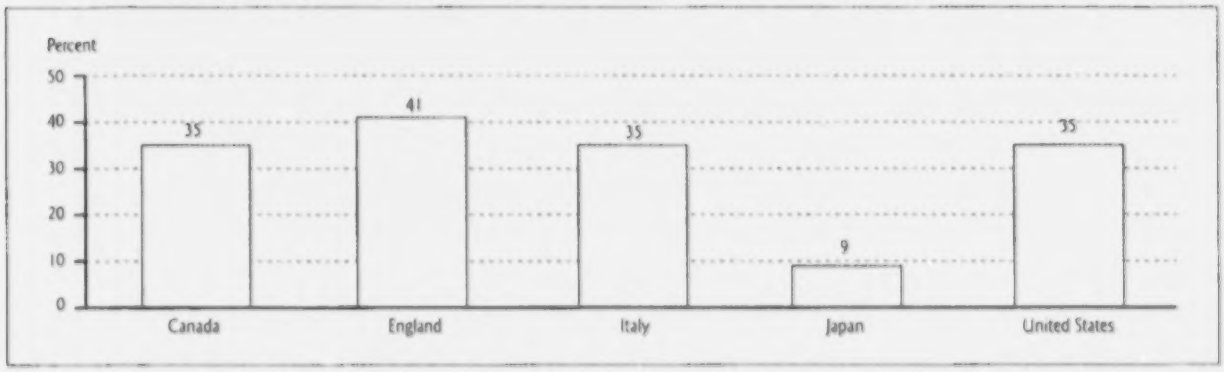
About one-third (32 percent) of U.S. eighth-grade students had a high score on the index of positive attitudes towards general/integrated science. The proportion of students in the United States with a high positive index score was below the proportion in England (39 percent), and above the proportion in Japan (10 percent). No difference was detected between the proportion of students with a high positive index score in the United States, Canada, and Italy (figure 15b).

Definition and Methodology

The mathematics index is based on students' responses to five statements about mathematics: 1) I like mathematics; 2) I enjoy learning mathematics; 3) mathematics is boring (reversed scale); 4) mathematics is important to everyone's life; 5) I would like a job that involved using mathematics. Average is computed across the five items based on a four-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

The science index is based on students' responses to five statements about science: 1) I like science; 2) I enjoy learning science; 3) science is boring (reversed scale); 4) science is important to everyone's life; 5) I would like a job that involved using science. Average is computed across the five items based on a 4-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. In countries where science is taught as separate subjects, students were asked about each subject area separately. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

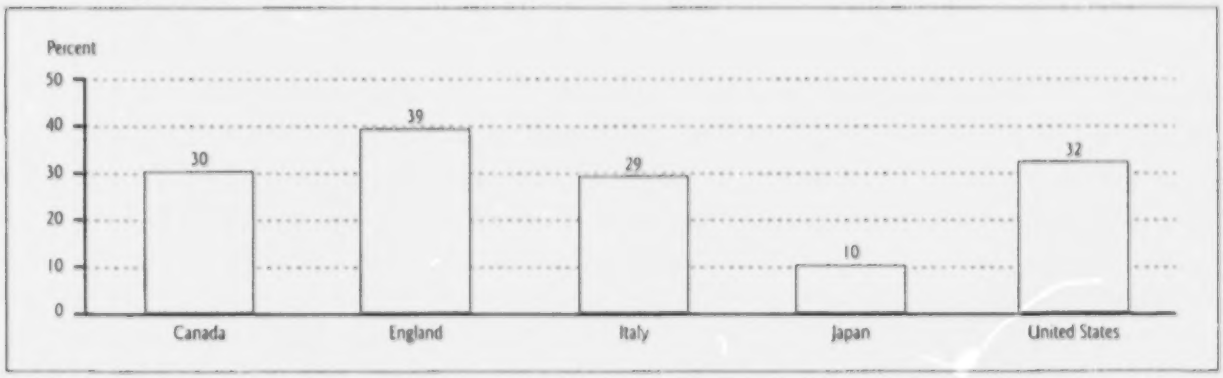
Figure 15a. Percentage of eighth-grade students with "high" scores on the index of positive attitudes towards mathematics, by country: 1999



NOTE: Index based on students' responses to five statements about mathematics: 1) I like mathematics; 2) I enjoy learning mathematics; 3) mathematics is boring (reversed scale); 4) mathematics is important to everyone's life; 5) I would like a job that involved using mathematics. Average is computed across the five items based on a four-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Mathematics Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 4.10.

Figure 15b. Percentage of eight-grade students with "high" scores on the index of positive attitudes towards science, by country: 1999



NOTE: Index based on students' responses to five statements about science: 1) I like science; 2) I enjoy learning science; 3) science is boring (reversed scale); 4) science is important to everyone's life; 5) I would like a job that involved using science. Average is computed across the five items based on a 4-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. In countries where science is taught as separate subjects, students were asked about each subject area separately. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Science Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 4.10.

Key Findings: Canada, England, Italy, Japan, Russian Federation, United States

In 1999, U.S. eighth-grade students had a mean score of 502 in mathematics on the Repeat of the Third International Mathematics and Science Study (TIMSS-R). The average score of U.S. eighth-grade students was lower than the average scores of students in Japan (579), Canada (531) and the Russian Federation (526). However, eighth-grade students in the United States attained a higher average mathematics score than their counterparts in Italy (479). No difference was detected between the average scores of eighth-grade students in the United States and in England (figure 16a).

U.S. eighth-grade students had a lower mean score in science than their counterparts in Japan (550), Canada (533), and England (538). Eighth-grade students in the United States had higher average scores than their counterparts in Italy (493). No difference was detected between the mean scores of U.S. and Russian eighth-graders in science (figure 16b).

About 9 percent of U.S. eighth-graders scored in the top 10 percent of the TIMSS-R international benchmarks in mathematics in 1999. A smaller proportion of U.S. eighth-graders reached the benchmark than eighth-graders in Japan, where 33 percent of eighth-graders reached this benchmark; a higher proportion of U.S. eighth-graders reached this benchmark than eighth-graders in Italy. No differences were detected in the proportion of eighth-graders who reached the benchmark in the United States, compared to Canada, the Russian Federation, and England (figure 16c).

Fifteen percent of U.S. eighth-graders scored in the top 10 percent of the TIMSS-R international benchmarks in science in 1999. A higher proportion of U.S. eighth-graders reached this benchmark than eighth-graders in Italy. No differences were detected in the proportion of eighth-graders who reached this benchmark in the United States, compared to Japan, England, the Russian Federation, and Canada.

Definition and Methodology

The top 10 percent benchmark of mathematics achievement represents students who can organize information, make generalizations, and explain solution strategies in non-routine problem solving situations. The top 10 percent benchmark of science achievement represents students who demonstrate a grasp of some complex and abstract science concepts.

Table 16a. Average scale scores of eighth-grade students in mathematics achievement, by country: 1999

Country	Scale score
Canada	531
England*	496
Italy	479
Japan	579
Russian Federation	526
United States	502

*Met guidelines for sample participation rates only after replacement schools were included.

NOTE: Dark shading represents a statistically higher score than the U.S. score; light shading represents a lower score. No shading shows no statistical difference from the U.S. score.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Mathematics Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 1.1.

Table 16b. Average scale scores of eighth-grade students in science achievement, by country: 1999

Country	Scale score
Canada	533
England*	538
Italy	493
Japan	550
Russian Federation	529
United States	515

*Met guidelines for sample participation rates only after replacement schools were included.

NOTE: Dark shading represents a statistically higher score than the U.S. score; light shading represents a lower score. No shading shows no statistical difference from the U.S. score.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Science Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 1.1.

Table 16c. Percentage of eighth-grade students reaching the top 10 percent benchmark of the TIMSS-R International Benchmarks of mathematics and science achievement, by country: 1999

Country	Mathematics	Country	Science
Canada	12	Canada	14
England	7	England	19
Italy	5	Italy	7
Japan	38	Japan	19
Russian Federation	15	Russian Federation	17
United States	9	United States	15

NOTE: Dark shading represents a statistically higher score than the U.S. score; light shading represents a lower score. No shading shows no statistical difference from the U.S. score.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Mathematics Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 1.6; International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Science Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 1.6.

READING PERFORMANCE OF SECONDARY SCHOOL-AGE YOUTH

Key Findings: Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States

No difference was detected between the mean scores of U.S. 15-year-olds on the Program for International Student Assessment (PISA) reading literacy scale (504) and the mean scores of 15-year-olds in France, Italy, Germany, Japan, and the United Kingdom. However, the mean literacy score of U.S. students was below the mean of 534 for Canadian students and above the mean for students in the Russian Federation. The mean score of 462 for Russian students was lower than the mean score in the seven other countries reporting data (figure 17a).

Twelve percent of U.S. 15-year-olds performed at the highest proficiency level on the PISA reading literacy scale. The proportion of 15-year-olds performing at the highest level was higher in the United States than in Italy (5 percent) and the Russian Federation (3 percent), but no differences were detected between the United States and Canada, France, Germany, Japan, or the United Kingdom (figure 17b).

Definition and Methodology

Combined reading literacy is based on three scales: a "retrieving information scale" that reports students' ability to locate information in a text, an "interpreting texts" scale that reports on the ability of students to construct meaning and draw on inferences from written information, and a "reflection and evaluation" scale which reports on students' ability to relate text to their knowledge, ideas and experience.

The combined reading literacy scale was designed to have an average score of 500 and a standard deviation of 100. Each of the three reading scales is divided into five levels of knowledge and skills. Level 5, the highest level of proficiency, corresponds to a score of more than 625, level 4 to a score in the range from 553 to 625, level 3 to scores from 481 to 552, level 2 to scores from 408 to 480, and level 1, the lowest of level of proficiency, to scores from 335 to 407.

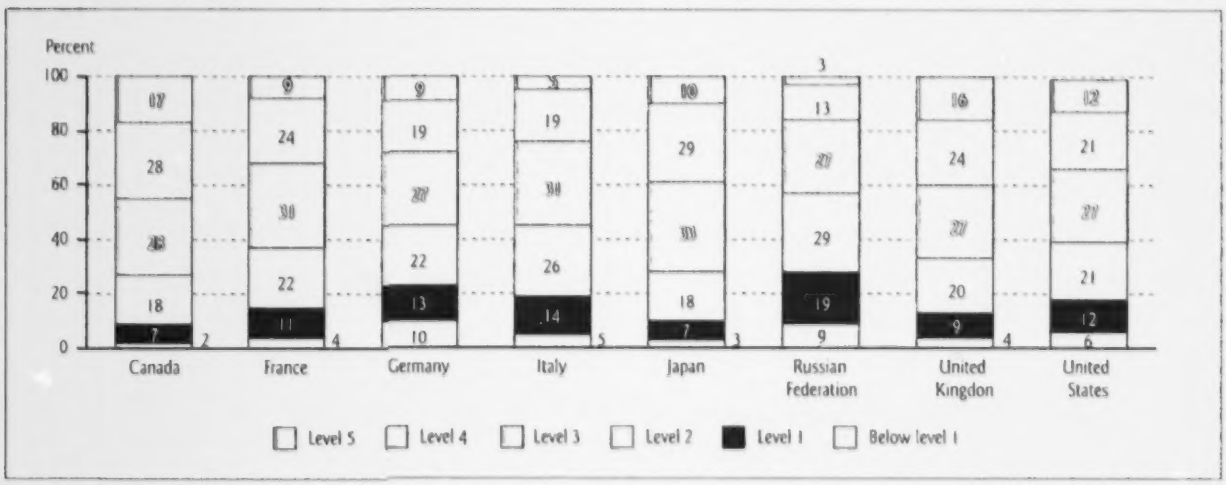
Table 17. Mean reading literacy performance scores of 15-year-olds, by country: 2000

Country	Mean score
Canada	534
France	505
Germany	484
Italy	487
Japan	522
Russian Federation	462
United Kingdom	523
United States	504

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Dark shading represents a statistically higher score than the U.S. score; light shading represents a lower score. No shading shows no statistical difference from the U.S. score.

SOURCE: Organization for Economic Cooperation and Development, *Knowledge and Skills for Life: First Results from PISA 2000*, 2000, Table 2.3a.

Figure 17. Percentage of students performing at given proficiency levels on the combined reading literacy scale, by country: 2000



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. The combined reading literacy scale was designed to have an average score of 500 and a standard deviation of 100. Each of the three reading scales is divided into five levels of knowledge and skills. Level 5, the highest level of proficiency, corresponds to a score of more than 625; level 4 to a score in the range from 553 to 625; level 3 to scores from 481 to 552; level 2 to scores from 408 to 480; and level 1, the lowest level of proficiency, to scores from 335 to 407.

SOURCE: Organization for Economic Cooperation and Development, *Knowledge and Skills for Life: First Results from PISA 2000*, 2000, Table 2.1a.

CIVIC PARTICIPATION

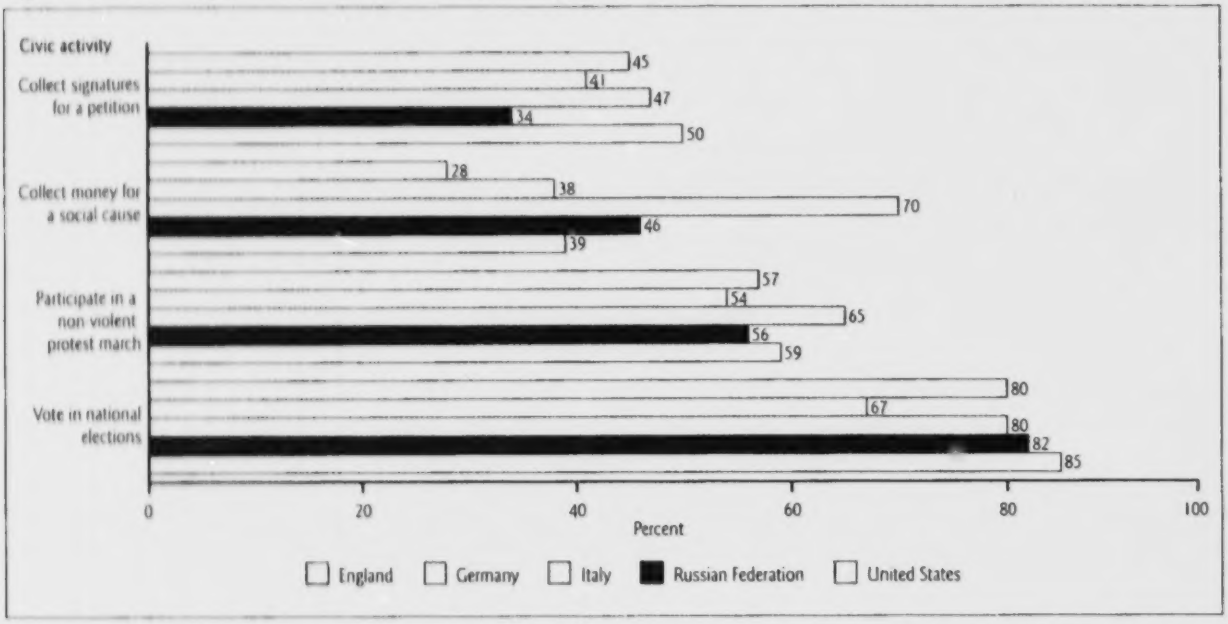
Key Findings: England, Germany, Italy, Russian Federation, United States

Eighty-five percent of U.S. 14-year-olds reported in 1999 that they expect to vote in national elections. A relatively high proportion of 14-year-olds in the other four countries reporting data also expect to vote in national elections. The range was from 67 percent in Germany to 82 percent in the Russian Federation (figure 18).

Nearly three in five U.S. 14-year-olds (59 percent) expect to collect money for a social cause, one-half expect to collect signatures for a petition, and 39 percent expect to participate in a non-violent protest march.

In contrast with U.S. 14-year-olds, about one in three (34 percent) Russian 14-year-olds expect to collect signatures for a petition and 28 percent of English 14-year-olds expect to participate in a non-violent protest march. On the other hand, 70 percent of Italian 14-year-olds expect to participate in a non-violent protest march.

Figure 18. Percentage of 14-year-olds who expect to participate in various civic activities, by country: 1999



SOURCE: International Association for the Evaluation of Educational Achievement, *Citizenship and Education in Twenty-eight Countries: Civic Knowledge and Engagement at Age Fourteen*, 2001, Table 6.3.

Key Findings: England, Germany, Italy, Russian Federation, United States

Ninth-grade students in the United States and Italy had the highest average scores on the test of civic knowledge of the five countries participating in the International Civic Education Assessment in 1999. Assessment of civic knowledge is based on the assessment of ninth-grade students' performance in two areas: civic content and civic skills. The score on civic knowledge of U.S. ninth-graders was higher than the scores of ninth-graders in England, Germany, and the Russian Federation (figure 19a).

U.S. ninth-graders had a higher average score on the civic skills portion of the Civic Assessment than their counterparts in England, Italy, Germany, and the Russian Federation. Students in the Russian Federation had the lowest average score of these five countries, and German students had the second-lowest average score on the civic skills portion of this assessment (figure 19b).

On the civic content portion of the assessment, no difference was detected between the scores of ninth-graders in the United States and ninth-graders in Italy, Germany, and the Russian Federation. However, U.S. ninth-graders had a higher average score on this part of the assessment than their counterparts in England (figure 19c).

Definition and Methodology

This indicator provides performance scores of 14-year olds (ninth-grade students in most countries) on 13 civic skills assessment items and 25 civic content assessment items on the International Civic Assessment in 1999. The combination of these two item sets makes up the total civic knowledge question set.

The total civic knowledge scale comprises the civic content scale and the civic skills scale. Civic content refers to the content knowledge of civic principles or pivotal ideas (e.g., the knowledge of what constitutes a democracy), whereas civic skills refer to the interpretive and thinking skills needed to make sense of civic-related information (e.g., the skills needed to make sense of a newspaper article or a political cartoon).

Table 19a. Average achievement scores of 14-year-olds in total civic knowledge, by country: 1999

Country	Total civic knowledge
England	99
Germany	100
Italy	105
Russian Federation	100
United States	106

NOTE: Countries were instructed to select the grade in which most 14-year-olds were enrolled at the time of the study. In the United States, this was 9th grade. Light shading represents a statistically lower score than the U.S. score. No shading shows no statistical difference from the U.S. score.

SOURCE: National Center for Education Statistics, *What Democracy Means to Ninth-Graders: U.S. Results From the International IEA Civic Education Study*, 2001, Figure 2.2.

Table 19b. Average achievement scores of 14-year-olds in civic skills, by country: 1999

Country	Civic skills
England	105
Germany	101
Italy	105
Russian Federation	96
United States	114

NOTE: Countries were instructed to select the grade in which most 14-year-olds were enrolled at the time of the study. In the United States, this was 9th grade. Light shading represents a statistically lower score than the U.S. score. No shading shows no statistical difference from the U.S. score.

SOURCE: National Center for Education Statistics, *What Democracy Means to Ninth-Graders: U.S. Results From the International IEA Civic Education Study*, 2001, Figure 2.3.

Table 19c. Average achievement scores of 14-year-olds in civic content, by country: 1999

Country	Civic content
England	96
Germany	99
Italy	105
Russian Federation	102
United States	102

NOTE: Countries were instructed to select the grade in which most 14-year-olds were enrolled at the time of the study. In the United States, this was 9th grade. Light shading represents a statistically lower score than the U.S. score. No shading shows no statistical difference from the U.S. score.

SOURCE: National Center for Education Statistics, *What Democracy Means to Ninth-Graders: U.S. Results From the International IEA Civic Education Study*, 2001, Figure 2.3.

UPPER SECONDARY SCHOOL GRADUATION RATES

Key Findings: France, Germany, Italy, Japan, United States

The United States had the second-lowest upper secondary school graduation rate of the five countries reporting data in 1999. The graduation rate of 78 in the United States was 17 points below the rate in Japan (95), 14 points below the rate in Germany (92), and 7 points below the rate in France (85). Only Italy, with a rate of 73, was below the United States on the graduation rate (figure 20).

In contrast to the other four countries reporting data, the graduation rate for males in the United States was higher than the rate for females (79 compared to 77). In the other countries reporting data, the graduation rate for females was 10 points higher than the rate for males in Italy, 5 points higher in Japan, 4 points higher in Germany, and 2 points higher in France.

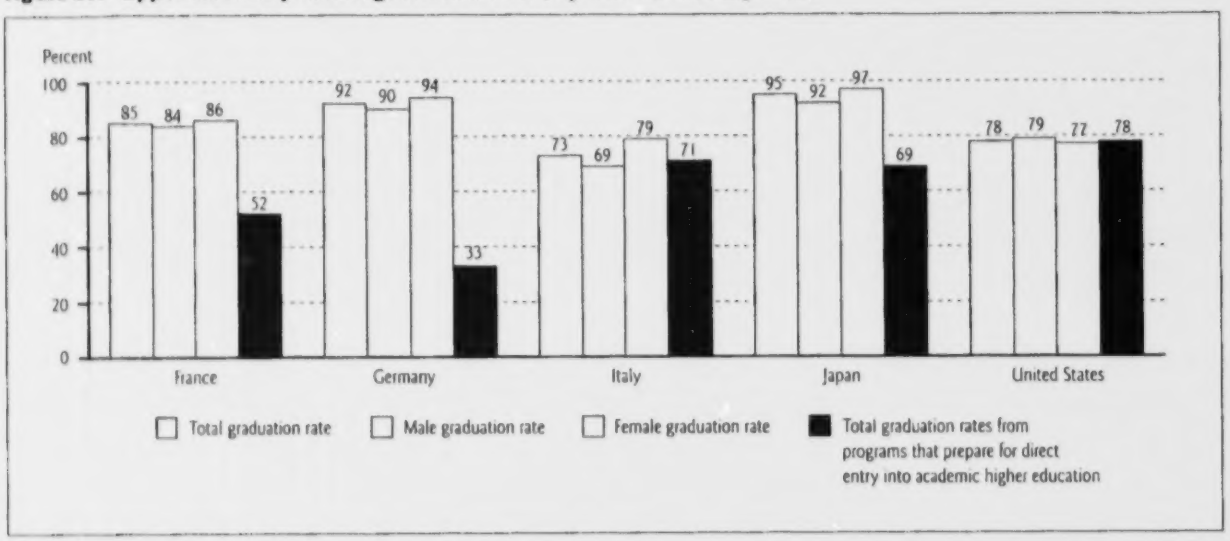
Students who complete upper secondary education (high school) in the United States receive a diploma that permits them to continue their studies in higher education in both academic and vocational programs. However, this is not the case in several other countries presented, as can be seen in graduation rates for students who are qualified to enter higher level academic programs. In Germany, for example, the overall graduation rate in 1999 was 92, but the rate for graduates who are qualified to enter into higher academic education was 33. Similarly, in Japan, the overall graduation rate was 95, but the rate for entry into higher academic education was 69.

Definition and Methodology

The number of upper secondary graduates divided by the total population at the typical age of graduation (multiplied by 100) in public and private institutions in total, and by gender, in 1999. The number of graduates from programs that permit students to enter academic higher education programs divided by the total population at the typical age of graduation (multiplied by 100) in public and private institutions, in 1999.

In the United States, all students who complete high school are eligible to enter a program of higher academic education. The graduation rate from programs that prepare students for direct entry into academic higher education is therefore the same as the graduation rate for all upper secondary programs. In other countries such as France and Germany, only students who complete programs of study that provide the qualifications for entry into the university can do so. Students who complete vocational and technical programs only have the qualifications to enter higher level vocational and technical programs. These differences in entry criteria into programs of higher education may contribute to differences in graduation rates from upper secondary programs that prepare for direct entry into academic higher education across countries.

Figure 20. Upper secondary school graduation rates, by sex and country: 1999



NOTE: Graduation rates for Germany use 1998 data. Graduation rates from programs that prepare for direct entry into academic higher education come from the column title ISCED 3A (designed to prepare for direct entry into tertiary type-A education). The figure presented for the United States is the same as the one reported as the total graduation rate, since graduation from all secondary programs permits entry into programs of academic higher education. In other countries such as France and Germany, only students who complete programs of study that provide the qualifications for entry into the university can enter programs of academic higher education. Students who complete vocational and technical programs only have the qualifications to enter higher level vocational and technical programs. These differences in entry criteria into programs of higher education may contribute to differences in graduation rates from upper secondary programs that prepare for direct entry into academic higher education across countries.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table C 2.2.

EXPENDITURES PER STUDENT FOR PRIMARY AND SECONDARY EDUCATION

Key Findings: France, Germany, Italy, Japan, United Kingdom, United States

In 1998, the United States had higher total expenditures per student for primary education ($6,043) than the five other countries reporting data. Expenditures per student for primary education in the United States was 82 percent higher than expenditures in the United Kingdom ($3,329), 71 percent higher than expenditures in Germany ($3,531), 61 percent higher than expenditures in France ($3,752), and 19 percent higher than expenditures in Japan ($5,075) (figure 21a).

The United States had higher expenditures per student for secondary education ($7,764) than the other five countries reporting data in 1998. Expenditures per student for secondary education in the United States was 48 percent higher than expenditures in the United Kingdom ($5,230), 32 percent higher than expenditures in Japan ($5,890), 25 percent higher than expenditures in Germany ($6,209), and 18 percent higher than expenditures in France ($6,605) (figure 21b).

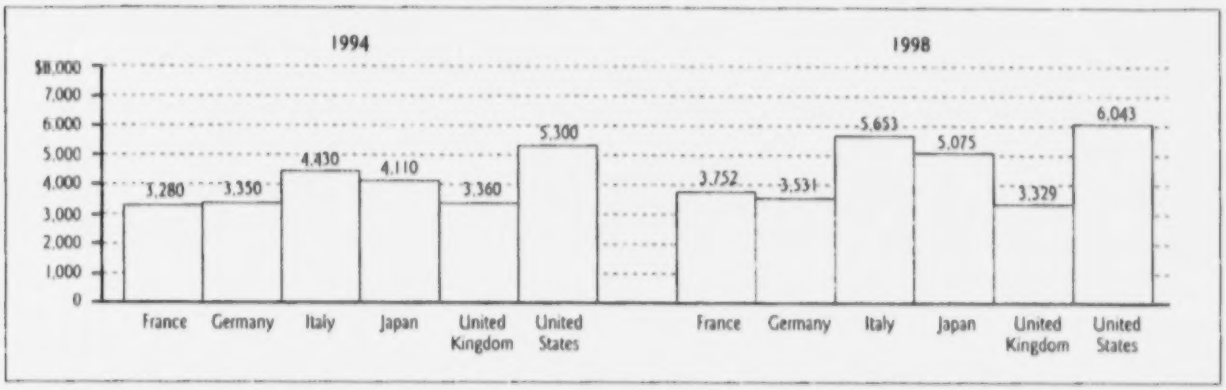
Definition and Methodology

Expenditures include salaries and fringe benefits for teachers and other educational staff, other current expenditures such as supplies and materials, and capital expenditures.

Expenditures in public and private institutions includes funds coming from both public and private sources and includes both current and capital expenditures. Expenditures per student are calculated by dividing the total expenditures for all institutions of primary or secondary education by the corresponding full-time equivalent enrollment. Expenditures in national currency are converted into equivalent U.S. dollars by dividing the national currency figure by the Purchasing Power Parity (PPP) index.

Prior to 1997, there was no category called "post-secondary, nontertiary" education in the international classification. For 1994, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary, nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary, nontertiary education in expenditures for higher education for 1994 and 1998. Comparisons among countries within a given year are thus more appropriate than comparisons over time.

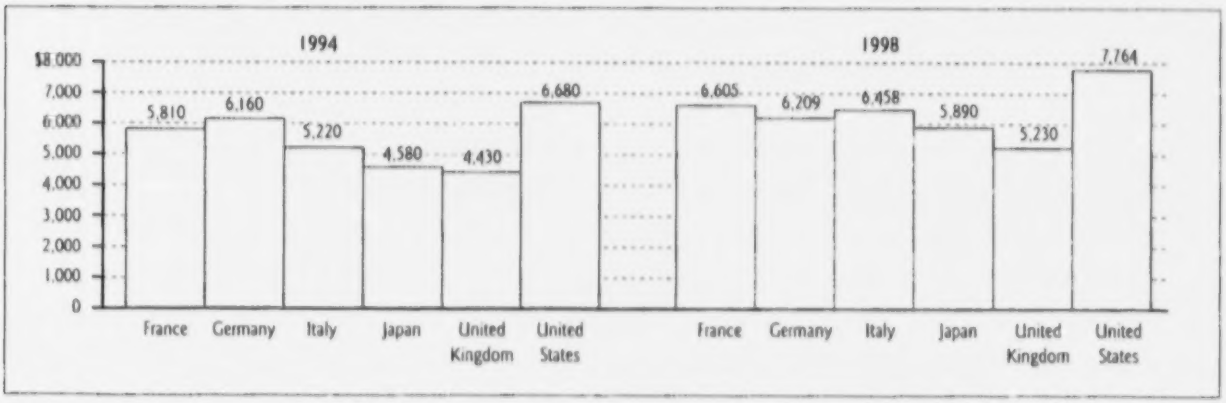
Figure 21a. Total expenditures per student in public and private primary schools, in current U.S. dollars converted using Purchasing Power Parities (PPPs), by country: 1994 and 1998



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Expenditures per student include only public institutions in Italy and Germany in 1994 and in Italy in 1998. Expenditures per student only include public and government-dependent private institutions in the United Kingdom in 1994 and 1998. Purchasing power parities (PPPs) are the currency exchange rates that equalize the purchasing power of different currencies. Prior to 1997, there was no category called "post-secondary, nontertiary" education in the international classification. For 1994, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary, nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary, nontertiary education in expenditures for higher education for 1994 and 1998. Comparisons among countries within a given year are thus more appropriate than comparisons over time.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table B 1.1; Organization for Economic Cooperation and Development, *Education at a Glance*, 1997, Table B 4.1.

Figure 21b. Total expenditures per student in public and private secondary schools, in current U.S. dollars converted using Purchase Power Parities (PPPs), by country: 1994 and 1998



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Expenditures per student include only public institutions in Italy and Germany in 1994 and in Italy in 1998. Expenditures per student only include public and government-dependent private institutions in the United Kingdom in 1994 and 1998. Purchasing power parities (PPPs) are the currency exchange rates that equalize the purchasing power of different currencies. Prior to 1997, there was no category called "post-secondary, nontertiary" education in the international classification. For 1994, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary, nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary, nontertiary education in expenditures for higher education for 1994 and 1998. Comparisons among countries within a given year are thus more appropriate than comparisons over time.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table B 1.1; Organization for Economic Cooperation and Development, *Education at a Glance*, 1997, Table B 4.1.

EXPENDITURES FOR PRIMARY AND SECONDARY EDUCATION AS A PERCENT OF GDP

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

With total public expenditures for primary and secondary education at 3.4 percent of Gross Domestic Product (GDP) in 1998, the United States was in the middle of the distribution of the countries presented, behind France (4.1 percent) and Canada (3.7 percent), equal to the United Kingdom and Italy (both at 3.4 percent), and ahead of Germany and Japan (both at 2.8 percent) (figure 22a).

In both 1994 and 1998, total public expenditures for primary and secondary education as a percent of GDP in the United States was lower than expenditures in Canada and France, and higher than expenditures in Germany and Japan.

Private expenditures for primary and secondary education were 0.4 percent of GDP in the United States in 1994 and 1998 (separate data for private expenditures not shown). The addition of private expenditures did not change the U.S. standing on this indicator, compared to other countries reporting data (figure 22b).

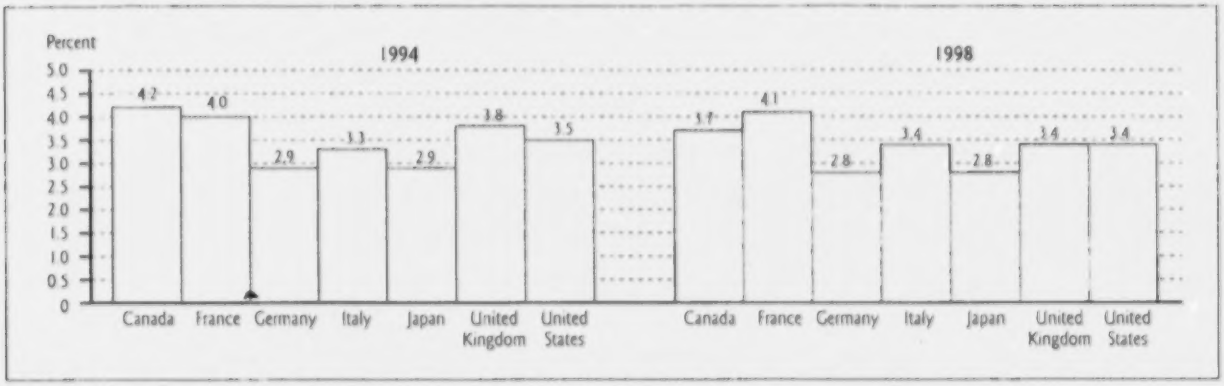
Definition and Methodology

Expenditures include salaries and fringe benefits for teachers and other educational staff, other current expenditures such as supplies and materials, and capital expenditures.

Public and private expenditures as a percent of GDP are calculated as public and private expenditures in public and private institutions divided by GDP. Public expenditures include direct expenditures on institutions and subsidies to households attributable to institutions. Private expenditures include direct private expenditures net of public subsidies attributable to institutions.

Prior to 1997, there was no category called "post-secondary, nontertiary" education in the international classification. For 1994, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary, nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary, nontertiary education in expenditures for higher education for 1994 and 1998. Comparisons among countries within a given year are thus more appropriate than comparisons over time.

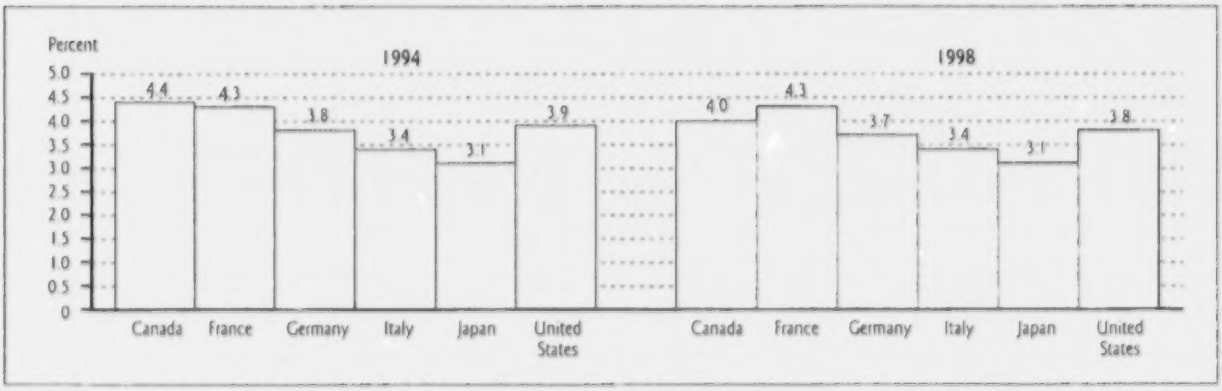
Figure 22a. Total public expenditures for primary and secondary education as a percent of Gross Domestic Product (GDP), by country: 1994 and 1998



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Figures for 1998 include post-secondary, nontertiary education in all other countries presented except the United States. Gross Domestic Product is the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of the purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). Prior to 1997, there was no category called "post-secondary, nontertiary" education in the international classification. For 1994, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary, nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary, nontertiary education in expenditures for higher education for 1994 and 1998. Comparisons among countries within a given year are thus more appropriate than comparisons over time.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table B2.1b; Organization for Economic Cooperation and Development, *Education at a Glance*, 1996 Table B 1.1b.

Figure 22b. Total public and private expenditures for primary and secondary education as a percent of Gross Domestic Product (GDP), by country: 1994 and 1998



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Figures for 1998 include post-secondary, nontertiary education in all other countries presented except the United States. Gross Domestic Product is the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of the purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). Prior to 1997, there was no category called "post secondary, nontertiary" education in the international classification. For 1994, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary, nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary, nontertiary education in expenditures for higher education for 1994 and 1998. Comparisons among countries within a given year are thus more appropriate than comparisons over time.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001 Table B2.1b; Organization for Economic Cooperation and Development, *Education at a Glance*, 1996 Table B 1.1b.

SOURCES OF PUBLIC FUNDING FOR PRIMARY AND SECONDARY EDUCATION

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

In the United States, Canada, and Germany, the three countries presented with a federal form of government,[1] the central government raises only a small portion of funds for primary and secondary education. In 1997, the federal government raised 7 percent of the revenues for primary and secondary education in the United States and 5 percent in Germany and Canada (figure 23).

Regional governments in the United States (states), Canada (provinces), and Germany (Länder) play an important role in the financing of primary and secondary education, but local governments also contribute to school funding. In 1997, regional and local governments in the United States, on average, shared nearly equally in the financing of primary and secondary education, with shares of funding at 50 and 43 percent, respectively. In Germany and Canada, regional governments played a larger role, raising 77 percent and 62 percent of the funds for primary and secondary education, respectively.

In two of the four non-federal countries—France and Italy—the central government plays the dominant role in financing primary and secondary education, with regional and local governments contributing a small share of total resources, on average. In 1997, the central government raised 79 percent of revenues for primary and secondary education in Italy and 73 percent in France.

In Japan, however, the central government does not play as large a role in the financing of primary and secondary education. In 1997, the national government raised about one-quarter of education funds, while regional governments (prefectures) provided nearly three-fifths (57 percent) of funds for primary and secondary education.

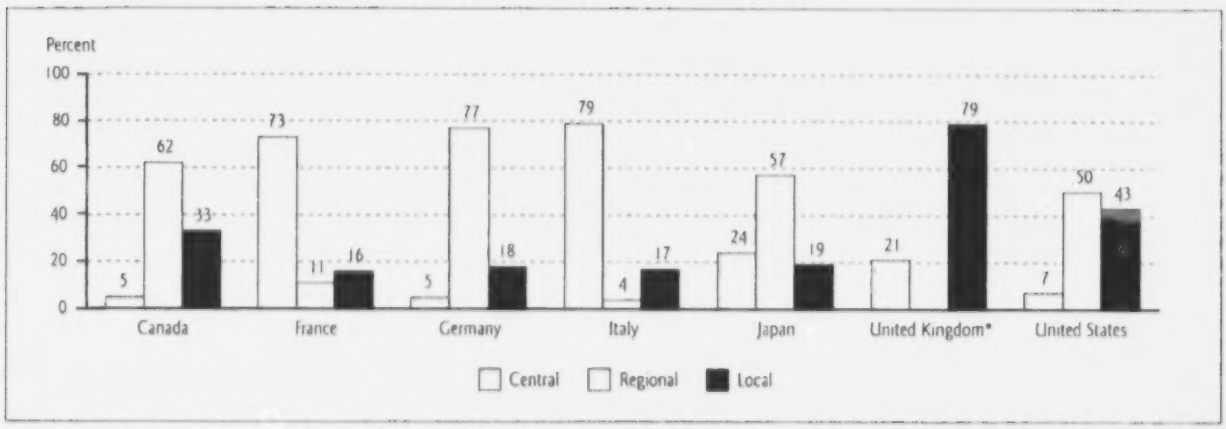
In the United Kingdom, the national government provides a smaller portion of funds for primary and secondary education than the local governments. In 1997, the shares were 21 percent and 79 percent, respectively. However, in the United Kingdom, local authorities receive a substantial portion of their funds from the national government in the form of a general-purpose grant. So the national government plays a large indirect role in the financing of primary and secondary education.

Definition and Methodology

The initial educational expenditures of each level of government is the total educational expenditures of all public authorities at the level in question before transfers between levels of government. The proportion of initial expenditures made by a particular level of government is calculated as a percentage of the total, consolidated expenditures of all three levels. Only expenditures specifically designated for education is taken into account in determining the proportion of initial expenditures borne by a particular level.

[1] In countries with a federal form of government, the constitution or fundamental law divides sovereignty between a central authority and regional authorities such as states and/or local authorities such as municipalities. In countries with a non-federal or unitary form of government, sovereignty is retained by the central authority; regional authorities are usually administrative offices of the central government.

Figure 23. Percentage of initial public funds for primary and secondary education, by government level and country: 1997



*The regional percentage for the United Kingdom is not presented because the category does not apply.

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Data include only initial funds before transfers between levels of government. Figures include expenditures for post-secondary, nontertiary education in all other countries presented, except the United States.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2000, Table B 6.1.a.

INDICATORS PART IV

Higher Education

Key Findings: Canada, France, Germany, Italy, United Kingdom, United States

In 1999, the United States had a full-time and part-time enrollment rate of 20 percent in higher education for adults ages 18 to 29. The enrollment rate for this age group was higher in the United States than in the other six countries presented (figure 24a).

Enrollment rates in higher education for adults ages 18 to 29 in the United States were 21 percent in 1994 and 20 percent in 1999. Between 1994 and 1999, enrollment rates in France and Germany increased by 1 percentage point, and the enrollment rate in the United Kingdom increased by 3 percentage points. As a result, all three countries narrowed the gap with the United States over the period. In contrast, the enrollment rate in Canada declined between 1994 and 1999. As a result, the United States moved from second to first place in the proportion of adults ages 18 to 29 enrolled in higher education.

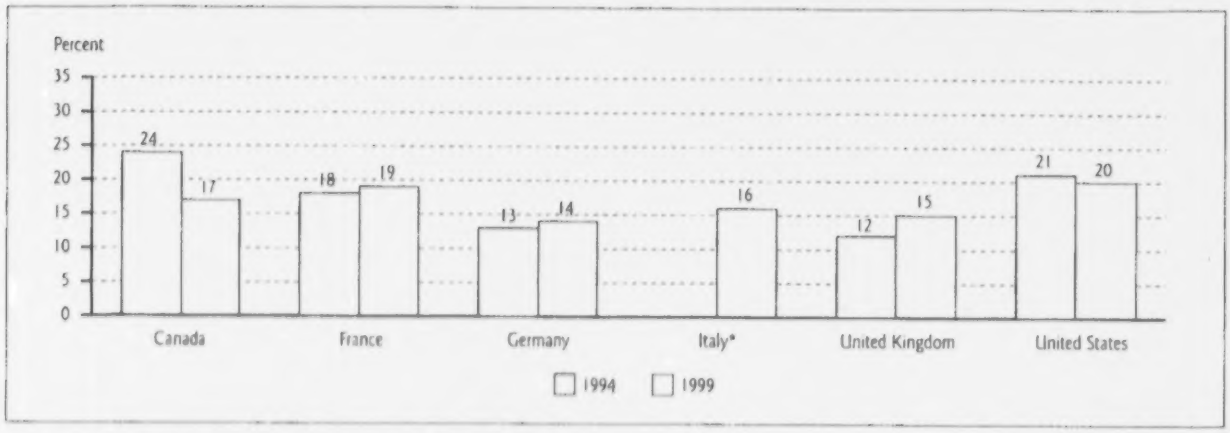
Almost 3 out of 10 adults ages 18 to 24 in the United States (28 percent) were enrolled full time or part time in higher education in 1999. The United States had a higher enrollment rate for this age group than Canada, the United Kingdom, Italy, and Germany, which had enrollment rates of 24 percent, 22 percent, 23 percent, and 15 percent, respectively. However, the enrollment rate of 18-to-24-year-olds in the United States was lower than the rate in France (30 percent) (figure 24b).

A much smaller proportion of adults ages 25 to 29 was enrolled full time and part time in higher education in the United States (10 percent) in 1999 compared to 18- to 24-year-olds. The proportion in the United States was higher than the proportions in Italy (9 percent), Canada (7 percent), the United Kingdom (6 percent), and France (5 percent), but was lower than the proportion in Germany (12 percent).

Definition and Methodology

The percentage of the population at a given age enrolled in education is called an "enrollment rate" in international comparisons. In this indicator, the term "enrollment rate" refers to "net enrollment rate." Net enrollment rate is defined as the number of students in a particular age group enrolled in education divided by the population of the same age group. Enrollments include full-time and part-time students in public and private institutions of higher education, ages 18 to 24 and 25 to 29 in 1999, and for ages 18 to 29 in 1994 and 1999.

Figure 24a. Percentage of the population ages 18 to 29 enrolled full time and part time in higher education, by country: 1994 and 1999

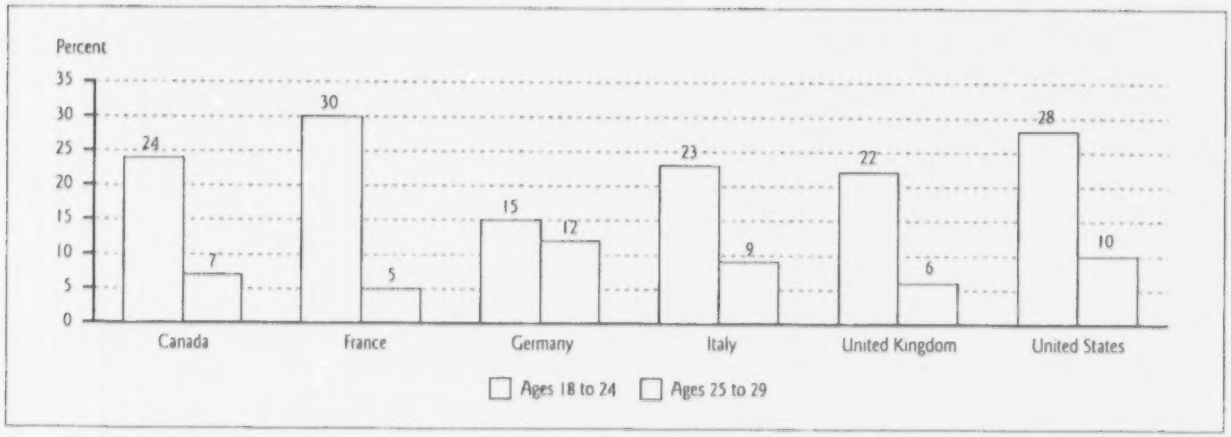


*Data not available for Italy in 1994.

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Data on doctoral students are missing for Germany and Italy in 1999.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001; U.S. Census Bureau, International Programs Center, 2002.

Figure 24b. Percentage of the population ages 18 to 29 enrolled full time and part time in higher education, by selected age group and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Data on doctoral students are missing for Germany and Italy in 1999.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001; U.S. Census Bureau, International Programs Center, 2002.

Key Findings: Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States

In 1999, the gross graduation rate from first university programs of medium length (from 3 to 5 years in length) was 33 per 100 at the population's typical age of graduation in the United States—the second-highest graduation rate in the countries presented. The graduation rate was lower in the United States than in the United Kingdom (36), but it was higher than the rates in Japan (29), Canada (27), the Russian Federation (26), France (19), Germany (5), and Italy (1). With the addition of graduates from long first university degree programs (from 5 to 6 years in length), the graduation rates for France and Germany increased to 25 and 16, respectively, but the rate for medium programs alone in the United States was still higher than the rate for medium and long programs combined in France and Germany (figure 25a).

In the United States, the graduation rate from first university programs that prepare students for advanced research training (33) was around three and one half times the graduation rate from vocational and technical programs that prepare students for direct entry into the labor market. Graduation rates from the first type of program were also considerably higher in the United Kingdom and Canada—over three times the graduation rate of vocational and technical programs in the United Kingdom and over twice the rate in Canada (figure 25b).

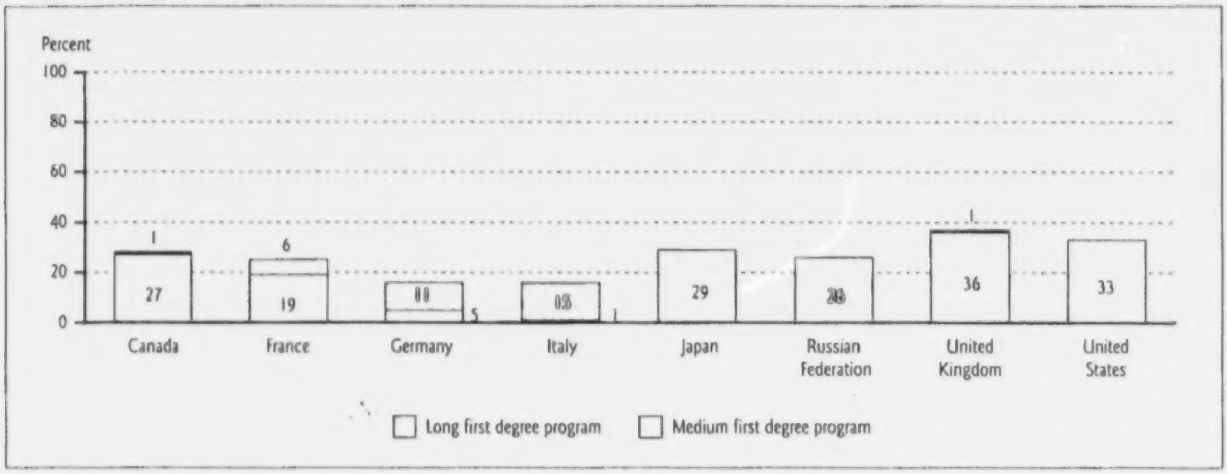
Japan was the only country reporting data in which the graduation rate from vocational and technical programs was higher than graduation rates from programs that prepare students for advanced research and professional programs. In 1999, the graduation rate from vocational and technical programs was 30, compared to 29 from programs with a more academic orientation (figure 25b).

Definition and Methodology

Gross graduation rates are calculated by dividing the total number of graduates (all ages) from first degree programs in public and private institutions by the population at the typical age of graduation and multiplying by 100. Gross graduation rates are presented for France, Japan, the Russian Federation, and the United States. The theoretical graduation ages are: 21 to 22 in France for a medium first degree and 23 to 24 for a long first degree; 22 in Japan for a medium first degree and 23 for a long first degree; 22 in the Russian Federation for a medium first degree; and 22 in the United States for a medium first degree. Net graduation rates are presented for Canada, Germany, Italy and the United Kingdom. Net graduation rates are the sum of graduation rates by single year of age from first degree programs.

Countries organize higher academic studies differently. In some countries, such as the United States, there is a clear distinction between first and second university degrees (i.e., undergraduate and graduate programs). First university degrees in these countries—a bachelor's degree in the United States—are typically of medium length (3 to 5 years duration in the international classification). (First university degrees exclude associate's degrees from community colleges.) In other countries, such as Germany and Italy, there is no distinction between first and second degree programs. The first university degree—the *Diplom* in Germany and the *Laurea* in Italy—is generally a long degree (5 to 6 years in the international classification). Program types are categorized as academic programs that prepare students for advanced research degrees and highly qualified professions (Type A in the international classification) and vocational/technical programs that prepare students for direct entry into the labor market (Type B programs).

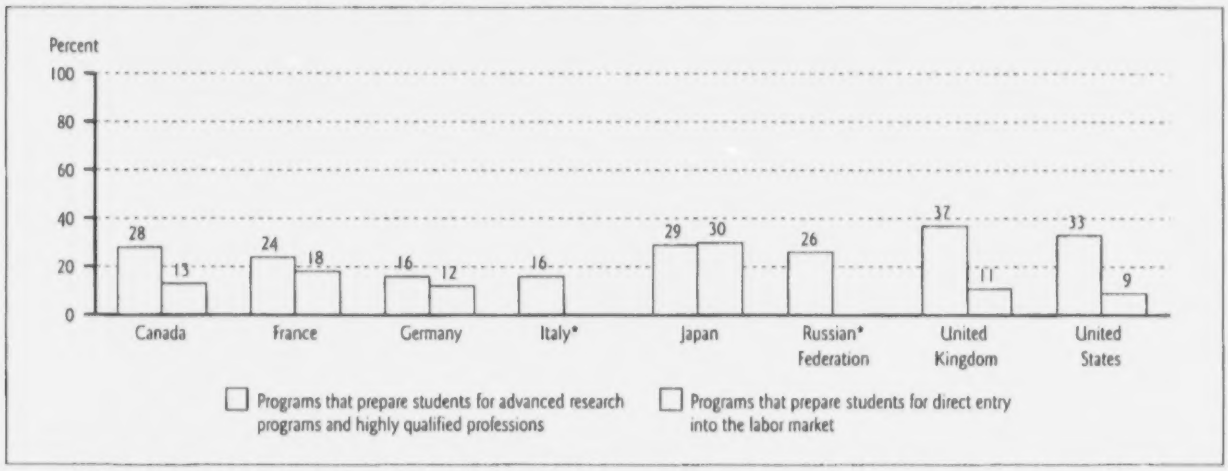
Figure 25a. Graduation rates in higher education, by length of program and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Medium first degree program data not available for the Russian Federation. Long first degree program data not applicable for Japan and not available for the United States. Programs that prepare students for advanced research and highly qualified professions are classified as first university degree programs. In the United States, the first university degree corresponds to a bachelor's degree. As a bachelor's degree is typically of 4 years' duration, it is classified as a medium length first degree. First university degrees exclude associate's degrees. Gross graduation rates are reported for France, Japan, the Russian Federation, and the United States; net graduation rates are reported for Canada, Germany, Italy, and the United Kingdom.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table C 4.1.

Figure 25b. Graduation rates in higher education, by type of program and country: 1999



*The graduation ratio for programs that prepare students for direct entry into the labor market in Italy rounds to zero; data on programs that prepare students for direct entry into the labor market are not available for the Russian Federation.

NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Programs that prepare students for advanced research and highly qualified professions are classified as first university degree programs. In the United States, the first university degree corresponds to a bachelor's degree. As a bachelor's degree is typically of 4 years' duration, it is classified as a medium length first degree. First university degrees exclude associate's degrees. Gross graduation rates are reported for France, Japan, the Russian Federation, and the United States; net graduation rates are reported for Canada, Germany, Italy, and the United Kingdom.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table C 4.1.

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

Eleven percent of first university degrees were awarded in science in the United States in 1999—placing the United States fifth among the countries presented. The percentage of first university degrees awarded in science in the United States was lower than the percentages in the United Kingdom (16 percent), France (15 percent), Germany (12 percent), and Canada (12 percent), but higher than the percentages in Japan (4 percent) and Italy (9 percent) (figure 26a).

Over one half of first university degrees in science awarded in the United States in 1999 were in the area of life sciences (53 percent). Life sciences was also the largest content area in three of the other four countries reporting data—Canada (53 percent), Italy (40 percent), and the United Kingdom (32 percent). In Germany, in contrast, 21 percent of first university science degrees were awarded in life sciences (figure 26b).

The second-highest proportion of first university science degrees awarded in the United States in 1999 was in computing (22 percent). The proportion of science degrees awarded in computing was lower in the United States than in the United Kingdom (28 percent) and Germany (27 percent), but higher than in Italy (14 percent) and Canada (21 percent) (figure 26b).

Ten percent of all first university science degrees awarded in the United States in 1999 were in mathematics and statistics—the lowest percentage of the five countries reporting data. The proportion of first university science degrees awarded in mathematics and statistics was lower in the United States than in Italy (22 percent), Germany (17 percent), Canada (12 percent), and the United Kingdom (11 percent) (figure 26b).

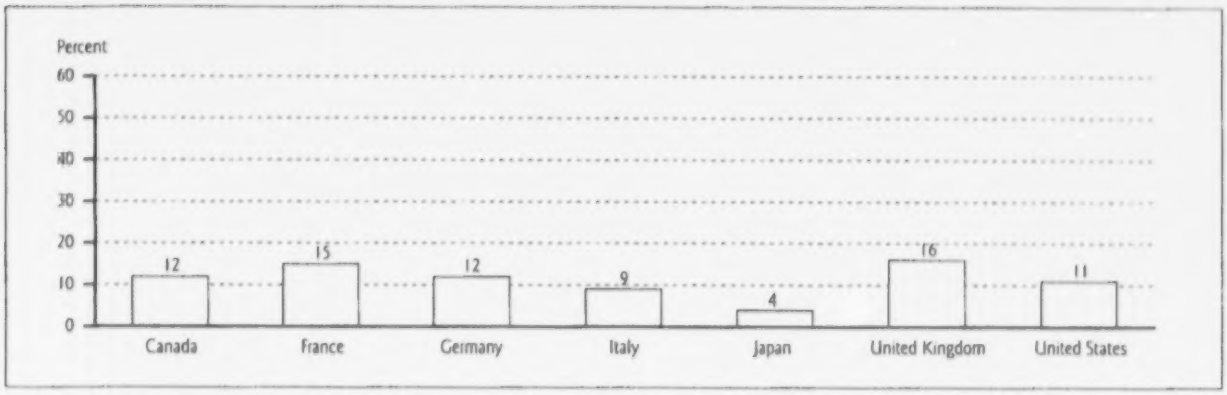
The proportion of first university science degrees awarded in the physical sciences in 1999 was also relatively low in the United States (16 percent), compared to three of the four other countries reporting data. The percentage of science degrees in the physical sciences was less than one half the percentage in Germany, where 36 percent of first university science degrees were awarded in the physical sciences, and below the figures in the United Kingdom (29 percent) and Italy (24 percent). Only Canada awarded a lower proportion of science degrees in the physical sciences (15 percent) than the United States in 1999 (figure 26b).

Definition and Methodology

The percent of first university degrees awarded in science is the share of first degrees awarded in the four science content areas relative to all first degrees awarded in all fields for a given year. The percent of first university degrees awarded by science content area is the percent distribution of first degrees awarded in a specific science content area relative to all first degrees awarded in the four science content areas for a given year.

Countries organize higher academic studies differently. In some countries, such as the United States, there is a clear distinction between first and second university degrees (i.e., undergraduate and graduate programs). First university degrees in these countries—a bachelor's degree in the United States—are typically of medium length (3 to 5 years duration in the international classification). In other countries, such as Germany and Italy, there is no distinction between first and second degree programs. The first university degree—the *Diplom* in Germany and the *Laurea* in Italy—is generally a long degree (5 to 6 years in the international classification.) Program types are categorized as academic programs that prepare students for advanced research degrees and highly qualified professions (Type A in the international classification) and vocational/technical programs that prepare students for direct entry into the labor market (Type B programs).

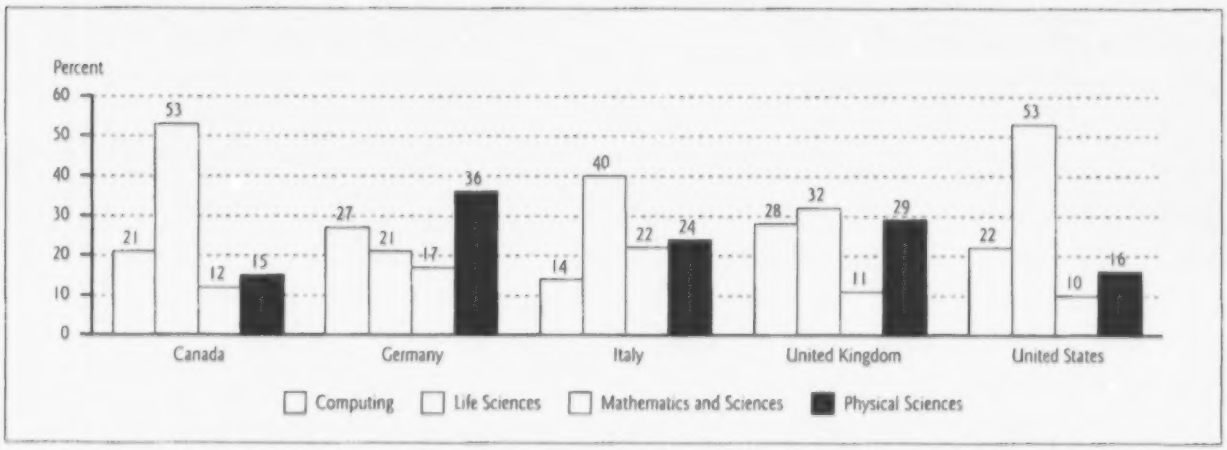
Figure 26a. Percentage of first university degrees awarded in science, by country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. First university degrees vary in duration in different countries in different programs of study. In the United States, the first university degree corresponds to a bachelor's degree; it excludes associate's degrees.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001.

Figure 26b. Percentage distribution of first university science degrees awarded, by science content area and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Percentages may not sum to 100 percent due to rounding. First university degrees vary in duration in different countries in different programs of study. In the United States, the first university degree corresponds to a bachelor's degree; it excludes associate's degrees.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001.

EXPENDITURES PER STUDENT FOR HIGHER EDUCATION

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

In 1998, the United States had the highest expenditures per student for higher education of all countries presented ($19,802). Expenditures per student in the United States were 36 percent higher than expenditures in Canada ($14,579), the country with the second-highest per-student expenditures of the countries presented (figure 27).

Expenditures per student for higher education in the United States in 1998 were more than twice as high as the expenditures in Germany ($9,481), the United Kingdom ($9,699), and Japan ($9,871), and more than two and one half times the expenditures per student in France ($7,226).

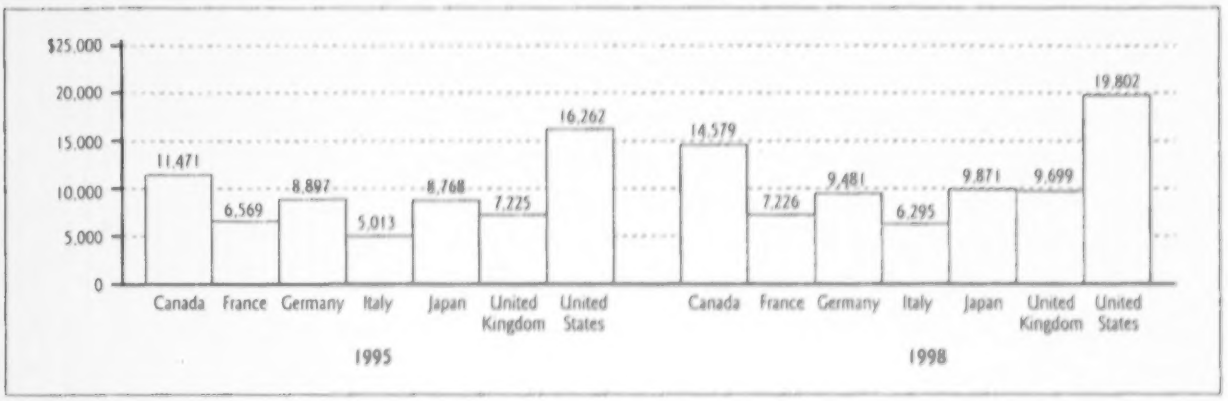
Definition and Methodology

Expenditures in public and private institutions include funds coming from both public and private sources and include both current and capital expenditures. Expenditures per student are calculated by dividing the total expenditures for all institutions of higher education by the corresponding full-time-equivalent enrollment. Expenditures in national currency are converted into equivalent U.S. dollars by dividing the national currency figure by the Purchasing Power Parity (PPP) index.

Expenditures per student include only public institutions in Italy and public and government-dependent private institutions in the United Kingdom. In Germany and Italy, there is no distinction between part-time and full-time students in higher education; all students are counted as full-time in calculations of expenditures per student.

Prior to 1997, there was no category called "post-secondary, nontertiary" education in the international classification. For 1995, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary, nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary, nontertiary education in expenditures for higher education for 1995 and 1998. Comparisons among countries within a given year are thus more appropriate than comparisons over time.

Figure 27. Expenditures per student in public and private institutions of higher education, in current U.S. dollars, converted using Purchasing Power Parities (PPPs), by country: 1995 and 1998



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Gross Domestic Product (GDP) is the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of the purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). Prior to 1997, there was no category called "post-secondary, nontertiary" education in the international classification. For 1995, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary, nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary, nontertiary education in expenditures for higher education for 1995 and 1998. Comparisons among countries within a given year are thus more appropriate than comparisons over time.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table B 1.1; Organization for Economic Cooperation and Development, *Education at a Glance*, 1998, Table B 4.1

EXPENDITURES FOR HIGHER EDUCATION AS A PERCENT OF GDP

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

In 1998, public expenditures of 1.1 percent of Gross Domestic Product (GDP) on higher education in the United States were second-highest among the countries presented; only Canada spent a greater percentage of its GDP on higher education (figure 28a).

In 1994 and 1998, the percent of GDP spent on higher education in the United States was higher than spending relative to GDP in France and Germany. However, the difference between the United States and both of these countries narrowed over the period (figure 28a).

In 1994 and 1998, public expenditures as a percent of GDP was higher in the United States than in Japan, where public spending was 0.4 percent of GDP in both years. Public spending on higher education as a percent of GDP was also higher in the United States than in Italy and the United Kingdom in both years (figure 28a).

With the addition of private expenditures for higher education, the United States replaced Canada as the country with the highest expenditures as a percent of GDP in 1998-2.3 percent in the United States and 1.9 percent in Canada (figure 28b).

Private expenditures added about 1.2 percent to higher education expenditures as a percent of GDP in the United States in 1998, more than doubling U.S. spending on higher education as a percent of GDP and representing the largest addition to spending as a percent of GDP of all countries presented. However, private expenditures were also a major component of expenditures on higher education in Canada (0.4 percent) and Japan (0.6 percent). With the addition of private expenditures, spending as a percent of GDP increased by 150 percent in Japan and by 27 percent in Canada (figure 28b).

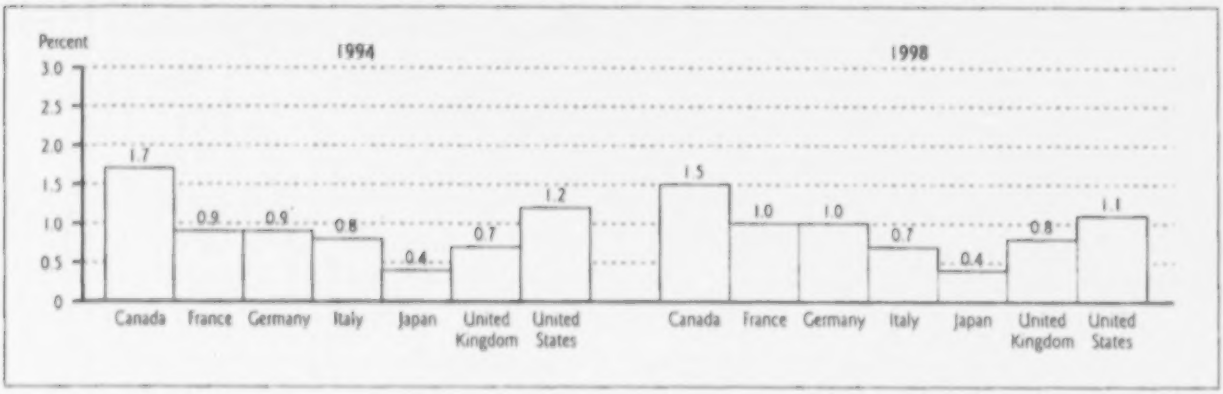
In 1994 and 1998, public and private expenditures on higher education as a percent of GDP were higher in the United States than in all other countries presented except Canada. In both years, the United States spent more than twice as much on higher education as a percent of GDP than France, Germany, Italy, Japan, and the United Kingdom (figure 28b).

Definition and Methodology

Public and private expenditures as a percent of GDP are calculated as public and private expenditures in public and private institutions divided by GDP. Public expenditures include direct expenditures on institutions and subsidies to households attributable to institutions. Private expenditures include direct private expenditures net of public subsidies attributable to institutions.

Prior to 1997, there was no category called "post-secondary nontertiary" education in the international classification. For 1994, expenditures for this type of education was included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary nontertiary education in expenditures for higher education for 1994 and 1998.

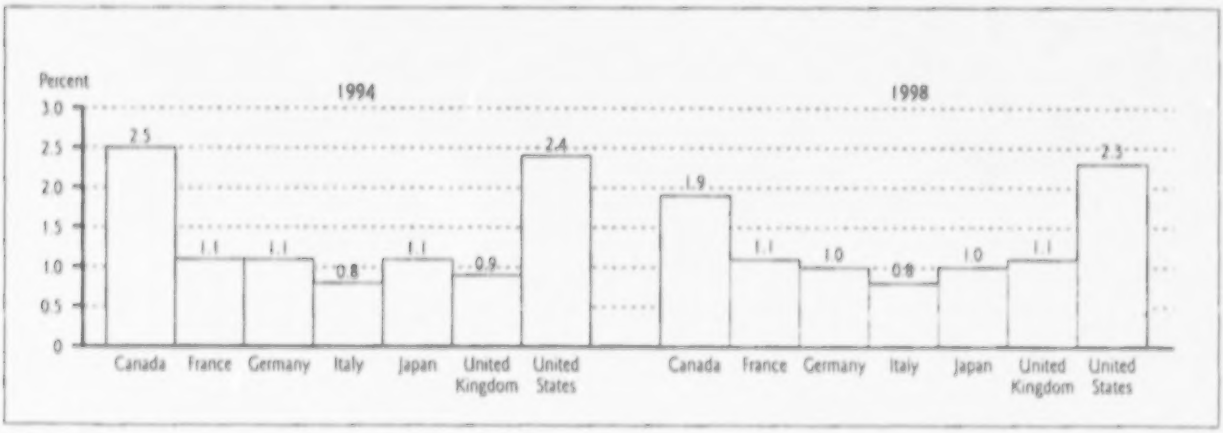
Figure 28a. Public expenditures for higher education as a percent of Gross Domestic Product (GDP), by country: 1994 and 1998



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Gross Domestic Product (GDP) is the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of the purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). Prior to 1997, there was no category called "post-secondary nontertiary" education in the international classification. For 1994, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary nontertiary education in expenditures for higher education for 1994 and 1998.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table B2.1.b; *Education at a Glance*, 1996 Table F.1.1.c.

Figure 28b. Public and private expenditures for higher education as a percent of Gross Domestic Product (GDP), by country: 1994 and 1998



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Gross Domestic Product (GDP) is the producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of the purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions). Prior to 1997, there was no category called "post-secondary nontertiary" education in the international classification. For 1994, expenditures for this type of education were included in expenditures for secondary education in all other countries presented here except the United States. With the establishment of "post-secondary nontertiary" education as a separate category in 1997, other countries continued to include expenditures for this category in expenditures for secondary education in data for 1998. Expenditures figures for the United States include expenditures for post-secondary nontertiary education in expenditures for higher education for 1994 and 1998.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table B2.1.b; *Education at a Glance*, 1996 Table F.1.1.c.

SOURCES OF PUBLIC FUNDING FOR HIGHER EDUCATION

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

In 1997, regional governments in the United States (states) provided 51 percent of public funds for higher education. The central government provided another 38 percent of higher education funds, and local governments provided the balance (11 percent) (figure 29).

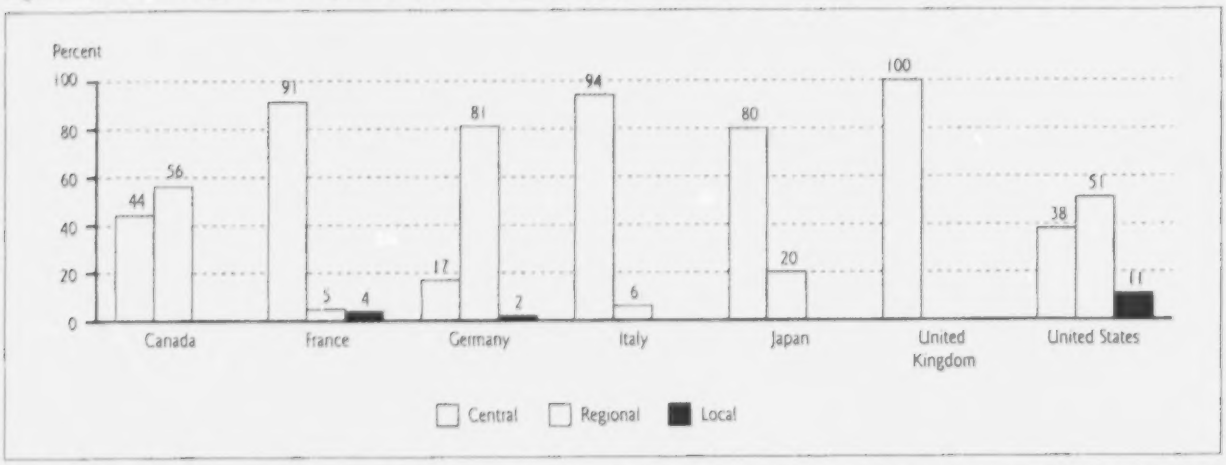
Regional governments in Canada (provinces) and Germany (Länder) provided 56 percent and 81 percent of public funds for higher education, respectively. The central governments provided the second-largest share of funds—44 percent in Canada and 17 percent in Germany—but local governments in Germany also provided a small percentage of higher education funds (2 percent).

In the four other countries presented, the central government was the predominant source of public funds for higher education. The share of public funds for higher education provided by the central government ranged from 80 percent in Japan to 100 percent in the United Kingdom.

Definition and Methodology

The initial educational expenditures of each level of government are the total educational expenditures of all public authorities at the level in question before transfers between levels of government. The proportion of initial expenditures made by a particular level of government is calculated as a percentage of the total expenditures of all three levels. Only expenditures specifically designated for education are counted in determining the proportion of initial expenditures borne by a particular level.

Figure 29. Percentage of initial public funds for higher education, by level of government and country: 1997



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Figures for the United States include post-secondary, nontertiary education in higher education. Data on local funds are not available for Canada, Italy, and the United Kingdom. Data on local funds are included in regional funds for Japan. Regional funds are not applicable for the United Kingdom. Percentages may not add to 100 percent due to rounding. Data include only initial funds before transfers between levels of government.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2000, Table B 6.1 b.

INDICATORS PART V

Education and the Labor Force

LABOR FORCE PARTICIPATION RATES

Key Findings: Canada, France, Germany, Italy, Japan, United Kingdom, United States

Adults ages 25 to 64 in the United States who completed upper secondary education (high school or its equivalent) participated in the labor force at a rate that was 16 percentage points higher than the rate of noncompleters of upper secondary education in 1999. The advantage of higher labor force participation of completers of upper secondary education relative to noncompleters was smaller in the United States than in Germany (18 percentage points), Canada (20 percentage points), Italy (23 percentage points), and the United Kingdom (25 percentage points), and the same as in France (16 percentage points). In contrast, the advantage of higher labor force participation of completers of upper secondary education was greater in the United States than in Japan. In 1999, completers of upper secondary education in Japan participated in the labor force at a rate that was 6 percentage points higher than the rate of noncompleters (figure 30a).

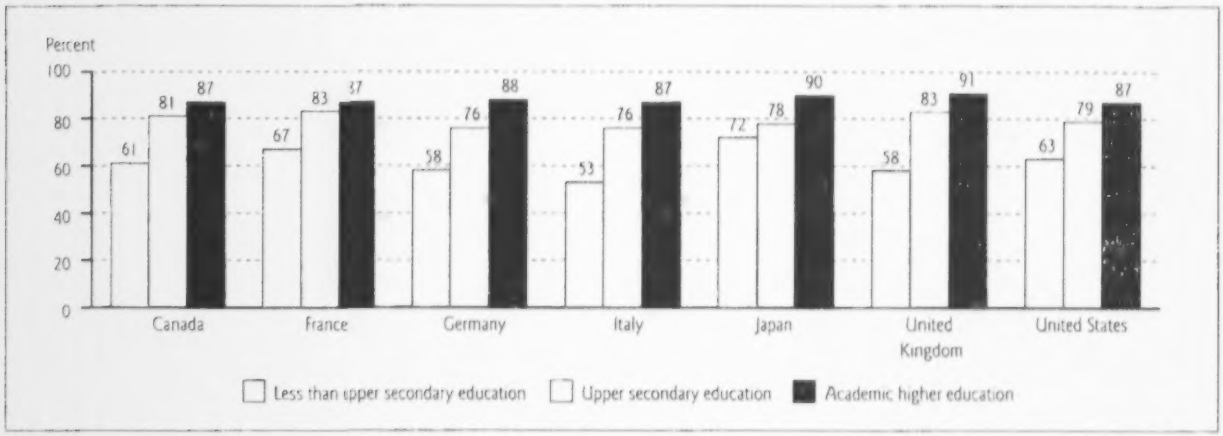
Completers of academic higher education ages 25 to 64 in the United States participated in the labor force at a rate that was 8 percentage points higher than the rate of completers of upper secondary education in 1999. The advantage of higher labor force participation of completers of academic higher education relative to completers of upper secondary higher education was smaller in the United States than in Italy (11 percentage points), Germany (12 percentage points), and Japan (12 percentage points), and the same as in the United Kingdom (8 percentage points). However, the advantage of higher labor force participation of completers of academic higher education relative to completers of upper secondary education was greater in the United States than in Canada (6 percentage points) and France (4 percentage points) (figure 30a).

In all countries presented, females who completed upper secondary education or academic higher education had lower labor force participation rates than their male counterparts in 1999. However, completion of academic higher education reduced the difference in labor force participation rates between females and males in all countries presented. In the United States, the difference in labor force participation rates of males and females who completed upper secondary education was 15 percentage points; the difference for completers of academic higher education was only 11 percentage points (figure 30b).

Definition and Methodology

The labor force participation rate of adults ages 25 to 64 for a particular level of educational attainment is calculated as the number of individuals ages 25 to 64 with the particular level of educational attainment who are participating in the labor force divided by the number of individuals ages 25 to 64 with the same particular level of educational attainment, regardless of employment status.

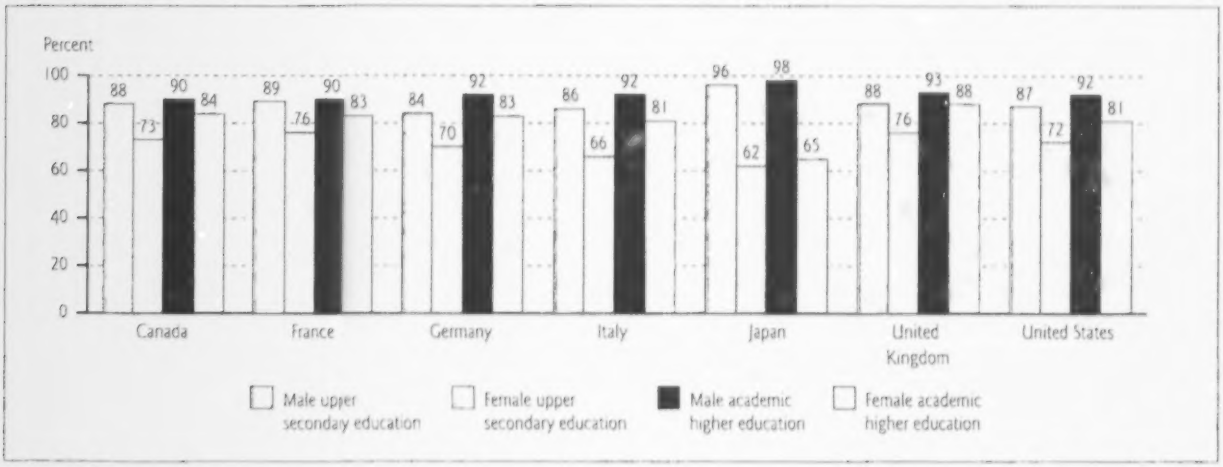
Figure 30a. Labor force participation rates of the adult population ages 25 to 64, by level of education and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001.

Figure 30b. Labor Force participation rates of the male and female adult population ages 25 to 64, by level of education and country: 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales.

SOURCE: Organization for Economic Cooperation and Development, Education Database, 2001.

EDUCATION AND EARNINGS

Key Findings: Canada, France, Germany, Italy, United Kingdom, United States

In 1999, adults ages 25 to 64 in the United States who completed less than upper secondary education earned, on average, about 67 percent of the earnings of adults who completed upper secondary education (figure 31a).

The earnings disadvantage for noncompleters of upper secondary education was smaller in the United States than in the United Kingdom and Italy, where upper secondary noncompleters earned 65 percent and 58 percent of the average earnings of completers of upper secondary education, respectively (figure 31a).

However, noncompleters of upper secondary education in the United States were at more of a disadvantage compared to completers in Germany, Canada, and France. In 1999, noncompleters of upper secondary education earned, on average, about 78 percent of the earnings of completers in Germany, about 83 percent of the earnings of completers in Canada, and about 84 percent of the earnings of completers in France (figure 31a).

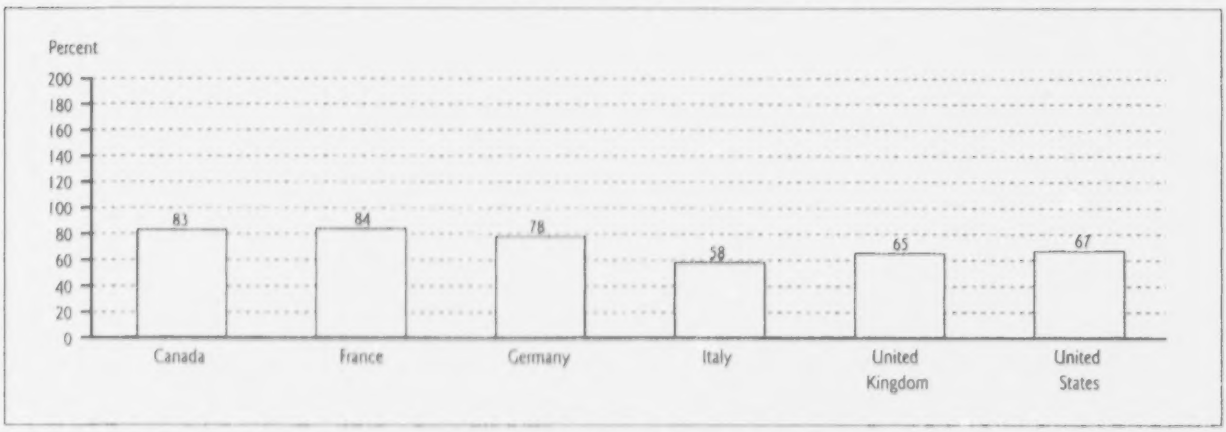
Completers of academic higher education ages 25 to 64 in the United States earned, on average, about 180 percent of the earnings of completers of upper secondary education in 1999. The relative advantage of U.S. higher education completers over upper secondary education completers was greater than in the other four countries reporting data, although in every country presented those who completed academic higher education earned more than those who only completed upper secondary education (figure 31b).

In the United Kingdom and France, in 1999, completers of academic higher education earned, on average, around 170 percent of the earnings of completers of upper secondary education. In Canada and Germany, completers of academic higher education earned, on average, 152 percent and 157 percent of the earnings of completers of upper secondary education, respectively (figure 31b).

Definition and Methodology

Relative earnings from employment are defined as the mean earnings (income from work before taxes) of persons at a given level of educational attainment divided by the mean earnings of persons with an upper secondary education multiplied by 100. These estimates are restricted to individuals with income from employment during the reference period. Earnings are annual for the six countries reporting with the exception of France, which used monthly figures.

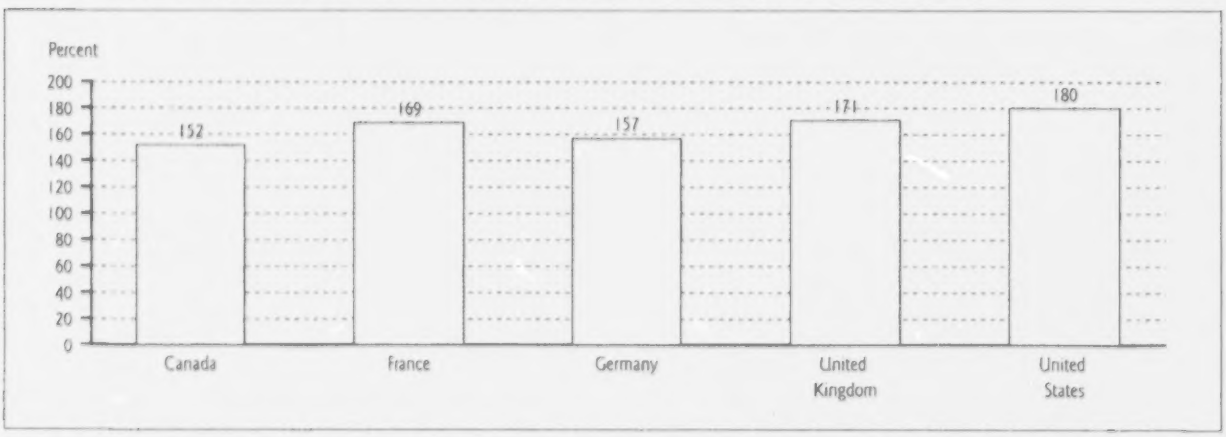
Figure 31a. Relative earnings of the adult population ages 25 to 64 who completed less than upper secondary education compared to adults who completed upper secondary education, by country: 1997, 1998, or 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Data reported in 1997 for Canada, data reported in 1998 for Germany and Italy, data reported in 1999 for France, the United Kingdom, and the United States. Relative earning percentages are derived from the indexed relative earnings values reported by the Organization for Economic Cooperation and Development. Upper secondary education is set to 100.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table E 5.1.

Figure 31b. Relative earnings of the adult population ages 25 to 64 who completed higher education compared to adults who completed upper secondary education, by country: 1997, 1998, or 1999



NOTE: The United Kingdom includes England, Northern Ireland, Scotland, and Wales. Data reported in 1997 for Canada, data reported in 1998 for Germany and Italy, data reported in 1999 for France, the United Kingdom, and the United States. Relative earning percentages are derived from the indexed relative earnings values reported by the Organization for Economic Cooperation and Development. Upper secondary education is set to 100.

SOURCE: Organization for Economic Cooperation and Development, *Education at a Glance*, 2001, Table E 5.1.

Glossary

GLOSSARY

Expenditures per student: Direct public and private expenditures on educational institutions in relation to the number of full-time equivalent (FTE) students enrolled in these institutions. See Full-Time Equivalent

Expenditures per student as a percentage of GDP: Direct public and private expenditures on educational institutions in relation to the gross domestic product (GDP). See Gross Domestic Product

First stage of tertiary education (ISCED 5): The first stage of tertiary education is comprised of two programs: tertiary academic education and tertiary vocational education. Tertiary academic education, also called tertiary type A education, is largely theoretically based and is intended to provide sufficient qualifications for gaining entry into advanced research programs and professions with high skill requirements. Entry into this level of education normally requires the completion of upper secondary or a similar qualification at the post-secondary non-tertiary level. Faculty teaching at this level of education must have advanced research credentials. Tertiary vocational education, also called tertiary type B education, is generally more practical, technical or occupationally specific than tertiary academic education. This level of education does not prepare students for direct access to advanced research education programs but is typically designed to prepare students to enter a particular occupation.

First university degree: A bachelor's degree in the United States, the first university degree is typically of medium length (three to five years duration in the international classification). In Germany it is called the *Diplom*, in Italy the *Laurea*, and is generally a long degree (five to six years duration in the international classification).

Full-time-equivalent (FTE): This FTE count attempts to standardize a student or teacher's actual load against the normal load. For the reduction of head-count data to FTEs, where data and norms on individual participation are available, course load is measured as the product of the fraction of the normal course load for a full-time student or teacher and the fraction of the school/academic year [FTE = (actual course load/normal course load) * (actual duration of study during reference period/normal duration of study during reference period)]. When actual course load information is not available, a full-time student or teacher is considered equal to one FTE.

G7 countries: See Group of Seven

G8 countries: See Group of Eight

Gross Domestic Product (GDP): The producers' value of the gross outputs of resident producers, including distributive trades and transport, less the value of the purchasers' intermediate consumption plus import duties. GDP is expressed in local money (in millions).

Gross teachers' salaries: The salaries reported are defined as gross salaries (total sum of money that is paid by the employer for the labor supplied) excluding the employer's contribution to social security and pension (according to existing salary scales). Salaries are "before tax," i.e., before deductions for income taxes. Gross teachers' salaries were converted to U.S. dollars using national Purchasing Power Parities (PPPs) exchange rate data from the OECD National Accounts 1999. See Purchasing Power Parity

Group of Eight (G8): This group is composed of eight industrialized nations with large economies, essentially the G7 with the Russian Federation also included: Canada, France, Germany, Italy, Japan, the Russian Federation, the United Kingdom, and the United States.

Group of Seven (G7): This group is composed of seven industrialized nations with large economies: Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.

Higher education: Study beyond secondary school at an institution that offers programs leading to an associate, baccalaureate, or higher degree (or equivalent degrees in other countries). It also is called tertiary or postsecondary education.

Labor force participation rate: The labor force participation rate of adults ages 25 to 64 for a particular level of educational attainment is calculated as the number of individuals ages 25 to 64 with the particular level of educational attainment who are par-

ticipating in the labor force, divided by the number of individuals ages 25 to 64 with the same particular level of educational attainment regardless of employment status.

Land (plural = Länder): The German equivalent to a state in the United States.

Long first university degree: A first university degree that is 5 to 6 years duration in the international classification.

Lower secondary education (ISCED 2): Lower secondary education is designed to complete the provision of basic education that began at ISCED level 1. In most countries, the educational aim is to lay the foundation for lifelong learning and human development on which countries may expand, systematically, further educational opportunities. At this level, programs use a more subject-oriented pattern with specialized teachers and more often several teachers conducting classes in their field of specialization. The full implementation of basic skills occurs at this level. The end of this level often coincides with the end of compulsory education where it exists. This education is approximately equivalent to grades 7, 8, and 9 in the United States.

Medium first university degree: A first university degree that is 3 to 5 years duration in the international classification.

Net enrollment rate: Total full-time enrollment in public and private institutions of an age group divided by the total population of the same age group.

Organization for Economic Cooperation and Development (OECD): The OECD is an organization of 30 nations (as of 2002) whose purpose is to promote trade and economic growth in both member and nonmember nations. OECD's activities cover almost all aspects of economic and social policy. The member countries are: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.

Post-secondary non-tertiary education (ISCED 4): Post-secondary non-tertiary education covers education between upper secondary education and tertiary education, internationally, but may be considered as upper secondary or post-secondary programs from a national perspective. Programs at this level of education are generally from 6 months to 2 years in duration and are not often significantly more advanced than upper secondary education programs but serve to broaden the knowledge of participants who have already completed an upper secondary level education program.

Preprimary education (ISCED 0): Preprimary education is the initial stage of organized instruction and designed primarily to introduce very young children to a school-type environment. The institution must be school- or center-based, to distinguish activities in primary schools, pre-schools, and kindergartens from services provided in households or family settings. Typically, programs start at this level at age 3 or later.

Primary education (ISCED 1): Primary education is the beginning of a systematic set of studies in reading, writing, and mathematics. In countries where the age of compulsory attendance comes after the beginning of this systematic set of studies, the first year of compulsory attendance determines the beginning of the primary level of education. The customary or legal age of entrance is for children not younger than 5 years or older than 7 years. This level covers in principle, 6 years of full-time schooling.

Private expenditures: Private expenditures refer to expenditures funded by private sources, i.e. households and other private entities. "Households" means students and their families. Other private entities include private business firms and non-profit organizations, including religious organizations, charitable organizations, and business and labor associations. Private expenditures comprise school fees; materials such as textbooks and teaching equipment; school transportation (if organized by the school); meals (if provided by the school); boarding fees; and expenditures by employers on initial vocational training. Private expenditures do not include public subsidies attributable to institutions. Note that private educational institutions are considered service providers, not funding sources.

Private schools or institutions: Schools or institutions organized and controlled independently of public authorities, even though they may receive public funding. Private schools include both government-dependent and independent private schools. Government-dependent private schools have private governing boards, but receive at least 50 percent of their funds from public sources. Independent private schools receive less than 50 percent of their funds from public sources.

Public expenditures: Include direct expenditures on institutions and subsidies to households attributable to institutions.

Purchasing power parity: Purchasing power parities (PPPs) are the currency exchange rates that equalize the purchasing power of different currencies. This means that a given sum of money, when converted into different currencies at the PPP rates, will buy the same basket of goods and services in all countries. In other words, PPPs are the rates of currency conversion that eliminate the differences in price levels among countries. Thus, when expenditures on GDP for different countries is converted into a common currency by means of PPPs, it is, in effect, expressed at the same set of international prices so that comparisons between countries reflect only differences in the volume of goods and services purchased.

Reading proficiency on the PISA assessment: Reading performance on PISA 2000 is reported as a scale score ranging from 0 to 1,000; the scale is constructed so that the average score for students from all OECD countries is 500. Combined reading literacy levels are reported in five levels from students whose literacy levels can be accurately predicted. The combined scale includes the following subtasks: retrieving information; interpreting texts; reflecting on texts.

Level 1, the lowest level of proficiency, contains scores in the range from 335 to 407. The lowest level of literacy requires that students locate one or more independent pieces of explicitly stated information, with little or no competing information in the text; recognize the main theme or author's purpose in a text about a familiar topic; make a simple connection between information in the text and common, everyday knowledge.

Level 2 contains scores in the range from 408 to 480. This level requires that students locate one or more pieces of information, with some competing information present in the text; recognize the main idea in a text when the information is not prominent; make a comparison or several connections between the text and outside knowledge.

Level 3 contains scores in the range from 481 to 552. This level requires that students locate the relationship between several pieces of information that must meet multiple conditions set by the question, with prominent competing information; integrate several parts of a text in order to identify a main idea, understand a relationship, or construe the meaning of a word or phrase; make connections, comparisons, and explanations, or evaluate a feature of the text.

Level 4 contains scores in the range from 553 to 625. This level requires that students locate and organize several pieces of embedded information, typically in a text whose content and form are unfamiliar; construe the meaning of nuances of language in a section of text by taking into account the text as a whole; critically evaluate a text or hypothesize about information in the text, using formal or public knowledge.

Level 5, the highest level of proficiency, contains scores of 626 and above. This level requires that students locate and organize several pieces of information in unfamiliar contexts; demonstrate a full and detailed understanding of a text whose content or form is unfamiliar; critically evaluate or hypothesize about the content of texts, drawing on specialized knowledge.

Relative earnings: Relative earnings from employment are defined as the mean earnings (income from work before taxes) of persons at a given level of educational attainment divided by the mean earnings of persons with an upper secondary education multiplied by 100. These estimates are restricted to individuals with income from employment during the reference period. Earnings are annual for the six G7 countries reporting with the exception of France, which used monthly figures.

Second stage of tertiary education (ISCED 6): The second stage of tertiary education leads to the award of an advanced research qualification, and is devoted to advanced study and original research, not based on course-work alone. ISCED level 6 requires the submission of a thesis or dissertation of publishable quality that is the product of original research and represents a significant contribution to knowledge. This program also prepares graduates for faculty posts at institutions offering ISCED 5A programs, as well as research posts in government, industry, and other areas.

Statutory salaries: Statutory salaries refer to scheduled salaries according to official pay scales. The annual statutory teachers' salaries are in equivalent U.S. dollars, converted using purchasing power parities (PPPs). See Purchasing Power Parity

Student/teacher ratio: Student enrollment at a given period of time divided by the full-time-equivalent number of classroom teachers serving these students during the same period.

Unemployment rate: The unemployment rate of adults ages 25 to 64 for a particular level of educational attainment is calculated as the

number of individuals ages 25 to 64 with a particular level of educational attainment who are either without work or are actively seeking employment and currently available to start work, divided by the number of individuals ages 25 to 64 with the same particular level of educational attainment who are labor force participants.

Upper secondary education (ISCED 3): Upper secondary education typically begins at the end of full-time compulsory education for those countries that have a system of compulsory education. More specialization may be observed at this level and often teachers need to be more qualified or specialized than in lower secondary education (ISCED 2). The entrance age to this level is typically 15 or 16 years. There are 3 programs of upper secondary education that lead to different types of subsequent education: ISCED level 3A, designed to provide direct access to tertiary academic education (ISCED level 5A); ISCED level 3B, designed to provide direct access to tertiary vocational education (ISCED level 5B); and ISCED level 3C, designed for education that provides direct entry into the labor market or other upper secondary education programs. See First Stage of Tertiary Education

Classification of Countries' Education Systems

CLASSIFICATION OF COUNTRIES' EDUCATION SYSTEMS

The production of international indicators requires the standardization of education programs and levels across countries. Towards this end, countries in the OECD and the World Education Indicators (WEI) project mapped their national education systems into the International Standard Classification of Education (ISCED) by identifying education programs that belong in different ISCED levels and describing selected characteristics of these programs. A synthesis of these country mappings for the G8 countries is presented in Table B below to enable the reader of this report to develop a better understanding of the similarities and differences in the education systems of the G8 countries. This understanding should contribute to a more informed interpretation of the 31 indicators presented in the body of the report.

Table B. Classification of education programs in the G8 countries into the International Standard Classification of Education (ISCED)

Country	**ISCED 0: Preprimary education. Initial stage of organized instruction, designed primarily to introduce very young children to a school-type environment.**	**ISCED 1: Primary education. Designed to give students a sound basic education in reading, writing, and mathematics.**	**ISCED 2: Lower secondary education. Continues the basic programs of the primary level, although teaching is more subject-focused.**	**ISCED 3: Upper secondary education. Completes secondary education, with instruction organized more along subject-matter lines than at ISCED 2. Includes 3A programs, which lead to higher level general education; 3B programs, which lead to higher level vocational-technical education; and 3C programs, which lead directly to the labor market.**
Canada	Program names: preschool, junior kindergarten, nursery school, kindergarten Typical starting ages: 4 to 5 Theoretical duration: 1 to 2 years Diploma or certification: none	Program names: primary or elementary school Typical starting age: 6 Theoretical duration: 5 to 6 years Diploma or certification: none	Program names: first stage of secondary school, junior high school Typical starting age: 11 or 12 Theoretical duration: 3 to 4 years Diploma or certification: none	Program names: second stage of secondary school, senior high school Typical starting age: 13 to 15 Theoretical duration: 4 to 5 years Diploma or certification: Secondary school diploma, grade 12 diploma, general high school diploma
France	Program names: preschool education Typical starting ages: 2 to 3 Theoretical duration: 3 to 4 years Diploma or certification: none	Program names: primary education Typical starting age: 6 Theoretical duration: 5 years Diploma or certification: none	Program names: secondary education 1er cycle (*Collège*) Typical starting age: 11 to 12 Theoretical duration: 4 years Diploma or certification: *Brevet*	Program names (ISCED 3B and 3C): secondary education – 2nd cycle, vocational training, first level; secondary education – 2nd cycle, vocational training, second level; vocational training for young people without qualification Typical starting age: 15 to 18 Theoretical duration: 1.5 to 3 years Diploma or certification: *Certificat d'aptitude professionnelle (BEP), Certificat d'aptitude professionnelle (CAP), Brevet*

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 0: Preprimary education.	ISCED 1: Primary education.	ISCED 2: Lower secondary education.	ISCED 3: Upper secondary education.
France (continued)				*professionnel (BP) Baccalauréat professionnel; mention complémentaire (MC)* Program names (ISCED 3A): secondary education – 2nd cycle, general; secondary education – 2nd cycle, technology Typical starting age: 15 or 16 Theoretical duration: 3 years Diploma or certification: *baccalauréat general, baccalauréat technologique*
Germany	Program names: kindergartens, school kindergartens, preschool classes Typical starting age: 3 to 6 Theoretical duration: 1 to 3 years Diploma or certification: none	Program names: primary schools Typical starting age: 6 Theoretical duration: 4 years Diploma or certification: none	Program names: lower secondary schools (no access to general education), lower secondary schools (access to general education Typical starting age: 10 Theoretical duration: 6 years Diploma or certification: *Hauptschul / Realschulabschluss*	Program names (ISCED 3B): specialized vocational schools, intermediate school certificate, health sector schools; specialized vocational schools, occupational qualification, dual system Typical starting age: 16 to 20 Theoretical duration: 1 to 3 years Diploma or certification: *Realschulabschluss, Berufliche Grundkenntnisse, Beruflicher Abschluss, Lehrabschluss* Program names (ISCED 3A): specialized vocational schools, *Fachgymnasien*, general upper secondary schools Typical starting age: 16 to 18 Theoretical duration: 2 to 3 years Diploma or certification: *Fachhochschulreife, Hochschulreife, Abitur*

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 0: Preprimary education.	ISCED 1: Primary education.	ISCED 2: Lower secondary education.	ISCED 3: Upper secondary education.
Italy	Program names: preschool Typical starting age: 3 years Theoretical duration: 3 years Diploma or certification: none	Program names: primary school; special education school, elementary education Typical starting age: 6 Theoretical duration: 5 years Diploma or certification: *licenza elementare*	Program names: lower secondary education; special education school, lower secondary education Typical starting age: 11 Theoretical duration: 3 years Diploma or certification: *licenza media*	Program names (ISCED 3C): regional vocational education, vocational institute, art institute Typical starting age: 14 Theoretical duration: 2 to 3 years Diploma or certification: *qualifica professionale regionale di I livello, licenza di maestro d'arte* Program names (ISCED 3B): art high school, first cycle Typical starting age: 14 Theoretical duration: 4 years Diploma or certification: *maturità artistico* Program names (ISCED 3A): secondary general education; art high school, second cycle; technical institute; vocational institute, art institute, second cycle Typical starting age: 14 Theoretical duration: 5 years Diploma or certification: *diploma di maturità classica, scientifica, licenza linguistica, maturità tecnica, maturità sperimentale tecnico-professionale-artistici*
Japan	Program names: day nursery, kindergarten Typical starting age: 3 to 5 Theoretical duration: 1 to 3 years Diploma or certification: none	Program names: elementary school; special education school, elementary department Typical starting age: 6 Theoretical duration: 6 years Diploma or certification: none	Program names: lower secondary school; special education school, lower secondary department Typical starting age: 12 Theoretical duration: 3 years Diploma or certification: certificate of graduation	Program names (ISCED 3C): upper secondary school, full-day specialized course, other specialized course Typical starting age: 15 Theoretical duration: 3 years Diploma or certification: certificate of graduation Program names (ISCED 3A): upper secondary school, full-day general course; full-day integrated course; special education school, upper secondary department

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 0: Preprimary education.	ISCED 1: Primary education.	ISCED 2: Lower secondary education.	ISCED 3: Upper secondary education.
Japan (continued)				Typical starting age: 15 Theoretical duration: 3 years Diploma or certification: certificate of graduation
Russian Federation	Program names: kindergarten Typical starting age: 3 Theoretical duration: 3 years Diploma or certification: none	Program names: primary education Typical starting age: 6 to 7 Theoretical duration: 4 years Diploma or certification: none	Program names: basic general education Typical starting age: 10 Theoretical duration: 5 years Diploma or certification: certificate I	Program names: (ISCED 3C): secondary vocational education Typical starting age: 15 Theoretical duration: 2 to 3 years Diploma or certification: certificate 2, diploma I Program names: secondary general education Typical starting age: 15 Theoretical duration: 2 years Diploma or certification: *attestat*
United Kingdom	Program name: nursery schools and classes, playgroups and day nurseries, reception classes Typical starting age: 2 to 4 Theoretical duration: 1 to 3 years Diploma or certification: none	Program name: primary school Typical starting age: 5 Theoretical duration: 6 years Diploma or certification: none	Program name: secondary school Typical starting age: 11 Theoretical duration: 3 years Diploma or certification: none	Program name (ISCED 3C): GNVQ (GSVQ) foundation level; GCSE course/ SCE standard grades; SCOTVEC national certification modules; GNVQ (GSVQ) intermediate level; activities leading to NVQ levels 1 and 2 Typical starting age: 14 to 17 Theoretical duration: 1 to 2 years Diploma or certification: general national vocational qualification (GNVQ), foundation level; GCSE/SCE standard; SCOTVEC national certification module; GNVQ intermediate level; national vocational qualifications, levels 1 and 2 Program name (ISCED 3A): activities leading to NVQ level 3; SCE higher grade; Scottish certificate of sixth year studies; GNVQ advanced level Typical starting age: 16 to 17 Theoretical duration: 1 to 2 years Diploma or certification: NVQ, level 3;

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 0: Preprimary education.	ISCED 1: Primary education.	ISCED 2: Lower secondary education.	ISCED 3: Upper secondary education.
United Kingdom (continued)				GCE A/AS equivalence; certificate of 6YS; GNVQ, advanced level; GCE A/AS
United States	Program names: preschool, prekindergarten, kindergarten Typical starting age: 2 to 5 Theoretical duration: 1 to 3 years Diploma or certification: none	Program names: elementary school Typical starting age: 6 Theoretical duration: 6 years Diploma or certificate: none	Program names: junior high school, middle school, secondary education (grades 7 to 9) Typical starting age: 12 Theoretical duration: 3 years Diploma or certificate: none	Program names: high school, secondary education (grades 10 to 12) Typical starting age: 15 Theoretical duration: 3 years Diploma or certificate: high school diploma, High School Equivalency Diploma or General Educational Development (GED) award

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 4: Postsecondary, nontertiary education. Programs are not more advanced than ISCED 3 programs but serve to broaden the knowledge of people who have completed an ISCED 3 program. Includes 4A programs that permit transfer to higher academic education; 4B programs that provide access to higher vocational-technical programs; and 4C programs that lead directly to the labor market.	ISCED 5B: Vocational/technical higher education. Includes higher level vocational and technical programs that provide the skills required to enter specific occupations.	ISCED 5A: Academic higher education—first stage. Includes programs that are intended to provide qualifications for entry into advanced research programs and professions with high skills requirements. Medium programs are 3 to less than 5 years in length; long programs are 5 years in length or longer. Second-degree programs follow, but do not require a research dissertation.	ISCED 6: Academic higher education—second stage (doctoral studies). Programs that lead to the award of an advanced research qualification. Requires the publication of a dissertation or a product of original research.
Canada	Program names (ISCED 4C): vocational training, trade/vocational certificate, apprenticeship, occupational training Typical starting ages: 16 to 18 Theoretical duration: 0.5 to 2 years Diploma or certification: secondary school vocational diploma, community college certificate, applied certificate Program names (ISCED 4A): university transfer (Québec) Typical starting age: 18 to 20 Theoretical duration: 2 years Diploma or certification: transcript	Program names: college diploma program, vocational diploma, occupational/technology program Typical starting age: 15 to 18 Theoretical duration: 1.5 to 3 years Diploma or certification: community college diploma, diploma of college studies	Intermediate degree—Program names: academic certificate, university transfer, university diploma program, university certificate Typical starting age: 18 to 19 Theoretical duration: 1 to 2 years Diploma or certification: undergraduate diploma, associate of arts, science degree, certificate—first cycle First university degree—Program names: bachelor's degree Typical starting age: 18 Theoretical duration: 4 years Diploma or certification: B.A., B.Sci, B.Mus, B.Ed Second university degree—Program names: postgraduate certificate program, master's, first professional degree programs Typical starting age: 22 Theoretical duration: 1 to 4 years Diploma or certification: postgraduate certificate, master's degree, medical degrees	Program name: doctorate Typical starting age: 22 to 24 Theoretical duration: 5 years Diploma or certification: Ph.D.

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 4: Postsecondary, nontertiary education.	ISCED 5B: Vocational/technical higher education.	ISCED 5A: Academic higher education—first stage.	ISCED 6: Academic higher education—second stage (doctoral studies).
France	Program names (ISCED 4C): education in health and social schools Typical starting age: 18 Theoretical duration: 2 to 4 years Diploma or certification: *diplôme de moniteur éducateur, éducateur technique specialize* Program names (ISCED 4A): pre-university education Typical starting age: 17 to 20 Theoretical duration: 1 to 2 years Diploma or certification: *diplôme de la capacité en droit, diplôme d'accès aux etudes universitaires*	Program names: vocational training (different programs) Typical starting age: 18 to 20 Theoretical duration: 1.5 to 3 years Diploma or certification: *brevet de technicien supérier (BTS), diplôme universitaire de technologie (DUT), diplômes professionals divers*	Intermediate degree—Program names: general training secondary schools, university education—1st cycle Typical starting age: 17 to 20 Theoretical duration: 2 years Diploma or certification: *concours d'entrée a une école d'ingénieur ou commerciale, diplôme d'études universitaires générales (DEUG)* First university degree—Program names: university education—2nd cycle, first year; specific schools Typical starting age: 18 to 20 Theoretical duration: 3 to 7 years Diploma or certification: *license, diplôme d'ingénieur, diplôme d'ingénieur commercial, diplômes professionnels, diplômes de pharmacien, dentiste, docteur en médecine* Second university degree—Program names: university education—2nd cycle, second year; specializations in health Typical starting age: 21 to 26 Theoretical duration: 2 to 3 years Diploma or certification: *maitrise, CAPES, professeur des écoles, diplômes des etudes spécialisées*	Third university degree—Program names: university education—3rd cycle, doctorate Typical starting age: 22 to 25 Theoretical duration: 1 year Diploma or certification: *diplôme d'études supérieures spécialisées (DESS), diplôme de docteur*

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 4: Postsecondary, nontertiary education.	ISCED 5B: Vocational/technical higher education.	ISCED 5A: Academic higher education—first stage.	ISCED 6: Academic higher education—second stage (doctoral studies).
Germany	Program names (ISCED 4B): dual system Typical starting age: 19 to 21 Theoretical duration: 3 years Diploma or certification: *Lehrabschluss* Program names (ISCED 4A): second cycle vocational programs; vocational schools, occupational qualification; dual system Typical starting age: 19 to 21 Theoretical duration: 1 to 3 years Diploma or certification: *Fachhochschulreife, Hochschulreife, Beruflicher Abschluss, Lehrabschluss*	Program names: specialized academies, trade and technical schools, vocational academies, colleges of public administration Typical starting age: 19 to 24 Theoretical duration: 2 to 4 years Diploma or certification: *Abschluss der Fachacademie, Fachhochschulreife, Fachschulabsch!uss, Meister/Techniker, Erzieher, Diplom*	Program names: Fachhochschulen, university studies Typical starting age: 19 to 24 Theoretical duration: 4 to 5 years Diploma or certification: *Diplom, Staatsprüfung*	Program names: doctoral studies Typical starting age: 25 to 29 Theoretical duration: 2 years Diploma or certification: *Promotion*
Italy	Program names (ISCED 4C): regional vocational education Typical starting age: 19 to 21 Theoretical duration: 0.5 years Diploma or certification: *qualifica profesionale regionale di II livelio*	Program names: sport studies, fine arts academy, dramatic art and higher artistic education Typical starting age: 19 Theoretical duration: 3 to 4 years Diploma or certification: *diploma di educazione fisica, diploma di academia di belle arte, diploma di regista*	First university degree—Program names: university education: university education, special courses Typical starting age: 19 Theoretical duration: 3 to 6 years Diploma or certification: *diploma di laurea, diploma universitario (laurea breve)* Second university degree—Program names: specialization post-laurea Typical starting age: 24 to 26 Theoretical duration: 2 to 5 years Diploma or certification: *diploma di specializzazione*	Program names: doctorate Typical starting age: 24 to 26 Theoretical duration: 3 to 5 years Diploma or certification: *titolo di dottore di ricerca*

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 4: Postsecondary, nontertiary education.	ISCED 5B: Vocational/technical higher education.	ISCED 5A: Academic higher education—first stage.	ISCED 6: Academic higher education—second stage (doctoral studies).
Japan	Program names: none	Program names: specialized training college, postsecondary course; junior college, correspondence course; junior college regular course Typical starting age: 18 Theoretical duration: 2 to 3 years Diploma or certification: technical associate, associate	First university degree—Program names: university undergraduate; university, undergraduate, correspondence course undergraduate of medicine, dentistry, and veterinary medicine Typical starting age: 18 Theoretical duration: 4 to 6 years Diploma or certification: bachelor's degree Second university degree—Program names: university graduate school, master's course Typical starting age: 22 Theoretical duration: 2 years Diploma or certification: master's degree	Program names: university, graduate school, doctor's course in medicine, dentistry, and veterinary medicine; university, graduate school, doctor's course Typical starting age: 22 to 24 Theoretical duration: 4 to 5 years Diploma or certification: doctor's degree
Russian Federation	Program names: secondary vocational education Typical starting age: 17 Theoretical duration: 1 to 2 years Diploma or certification: certificate 2	Program names: postsecondary special program Typical starting age: 17 Theoretical duration: 3 years Diploma or certification: specialist's diploma 1	Intermediate degree—Program names: incomplete higher education Typical starting age: 17 Theoretical duration: 2 years Diploma or certification: *attestat*, specialist's diploma 1 First university degree—Program names: basic higher education, professional higher education Typical starting age: 17 Theoretical duration: 4 to 7 years Diploma or certification: bachelor's degree, specialist's diploma 2 Second university degree—Program names: *magistratura, internatura* Typical starting age: 21 to 24 Theoretical duration: 1 to 2 years Diploma or certification: master's degree, *internatura*	Program names: *aspiratura, doktorantura* Typical starting age: 22 to 27 Theoretical duration: 2 to 3 years Diploma or certification: *kandidat nauk, doktor nauk*

Table B. Classification of education programs in the G8 Countries into the International Standard Classification of Education (ISCED)—Continued

Country	ISCED 4: Postsecondary, nontertiary education.	ISCED 5B: Vocational/technical higher education.	ISCED 5A: Academic higher education—first stage.	ISCED 6: Academic higher education—second stage (doctoral studies).
United Kingdom	Program names: HE (health education) access courses Typical starting age: 18+ Theoretical duration: varies Diploma or certification: none	Program names: activities leading to NVQ levels 4 and 5, higher national certificate (HNC), higher national diploma (HND), diploma in HE (including nurses' training) Typical starting age: 18+ Theoretical duration: 1 to 3 years Diploma or certification: various level 4 and 5 qualifications, HNC, HND	First university degree—Program names: bachelor's degree Typical starting age: 18 Theoretical duration: 2 to 5 years Diploma or certification: bachelor's degree (B.A., B.Sc., MB, BDS, BV, etc.) Second university degree—Program names: master's degree, postgraduate diplomas and certificates Typical starting age: 21 Theoretical duration: 1 to 2 years Diploma or certification: master's degree, postgraduate diplomas and certificates	Program names: doctorate Typical starting age: 21 Theoretical duration: 3 years Diploma or certification: Ph.D.
United States	Program names: vocational certificates (1 to 2 years) Typical starting age: 18 Theoretical duration: 1 to 1.5 years Diploma or certification: occupationally specific vocational certificates	Program names: associate's degree programs (vocational) Typical starting age: 18 Theoretical duration: 2 years Diploma or certification: Associate's degree in Arts (A.A.) or Sciences (A.S.)	Intermediate degree—Program names: associate's degree programs (academic) Typical starting age: 18 Theoretical duration: 2 years Diploma or certification: Associate's degree in Arts (A.A.) or Sciences (A.S.) First university degree—Program names: bachelor's degree program Typical starting age: 18 Theoretical duration: 4 to 5 years Diploma or certification: Bachelor's degree in Arts (B.A.) or Sciences (B.S.) Second university degree—Program names: master's degree programs, postgraduate certificate programs (e.g., teaching), first professional degree programs (e.g., law, medicine, dentistry) Typical starting age: 22 Theoretical duration: 1 to 2 years Diploma or certification: Master's degree in Arts (M.A.) or Sciences (M.S.)	Program names: doctorate Typical starting age: 24 Theoretical duration: 5 years Diploma or certification: Ph.D.

SOURCE: Organization for Economic Cooperation and Development, *Classifying Educational Programmes: Manual for ISCED-97 Implementation in OECD Countries*, Appendix Table; Organization for Economic Cooperation and Development, *Investing in Education: Analysis of the 1999 World Education Indicators*, Annex A5b.

Supplemental Notes

SUPPLEMENTAL NOTES

INDICATOR 6

Notes on Figures and Tables

Germany

Since data for teachers of the work-based component of combined school and work-based programs are not available, full-time students in combined school and work-based programs are counted as part time students (with a conversion factor of 0.4) for the calculation of the student/teacher ratio.

INDICATOR 7

Notes on Figures and Tables

Germany

The number of years from minimum to maximum salary depends on the starting age.

INDICATOR 10

Notes on Figures and Tables

England

Met guidelines for sample participation rates only after replacement schools were included. National Defined Population covers less than 90 percent of National Desired Population.

Scotland

Met guidelines for sample participation rates only after replacement schools were included.

INDICATOR 11

Notes on Figures and Tables

Japan

Estimates are provided for enrollment by age in primary and secondary education on the assumption that all students at the same grade are of the same age. Part-time enrollment at the upper secondary level includes students in correspondence courses at upper secondary schools. A part-time student equals one full-time equivalent at this level.

INDICATOR 12

Notes on Figures and Tables

1999

United Kingdom

Includes only general programs at upper secondary education.

No separate data are available on numbers of teachers at upper secondary levels of education. These figures have been estimated, using a slightly different methodology to that used for the 1998 figures. The result of this change in methodology is that students to teaching staff ratios at the upper secondary level were decreased.

Students to teaching staff ratios at upper secondary level only refer to upper secondary general education. Upper secondary vocational (further education) student data are based on a "whole-year count" (of students enrolled at any point in the year) rather than the "snapshot" count used in previous editions of *Education at a Glance*. Students enrolled for only part of the year, on "short courses" lasting a few weeks or months, are included in the student count, and this will have distorted calculations of students to teaching staff ratios. As a result of these changes, United Kingdom student-to-teaching staff ratios are not comparable with figures in previous years.

INDICATOR 20

Notes on Figures and Tables

Italy

Short ISECD 3C programs excluded.

INDICATOR 27

Notes on Figures and Tables

Italy

Public institutions only.

United Kingdom

Public and government-dependant private institutions only.

INDICATOR 28

Notes on Figures and Tables

United States

Post-secondary, nontertiary included in tertiary education.

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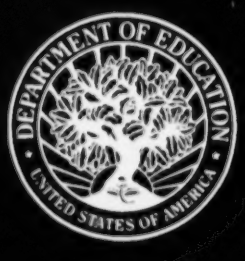

108

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